# THE CRUSADER OF THE COUNTRYSIE



JOHN WESLEY, RIDING THROUGH ENGLAND PREACHES AT A LITTLE VILLAGE GREEN

# THE BOOK OF KNOWLEDGE

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THE CHILDREN'S ENCYCLOPEDIA

EDITED BY

#### ARTHUR MEE

LONDON

The following are the Departments into which the Work is divided

PLANT LIFE · OURSELVES · COUNTRIES
PICTURE ATLAS · FAMILIAR THINGS
MEN & WOMEN · ANIMAL LIFE
EARTH AND ITS NEIGHBOURS
THINGS TO MAKE AND DO
LITERATURE · THE BIBLE
HISTORY · WONDER
STORIES AND LEGENDS
POWER · POETRY
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ART · IDEAS

VOLUME TEN

THE INDIAN EDITION

The Standard Literature Co. Ltd. (Calcutta)
The Educational Book Co. Ltd. (London)

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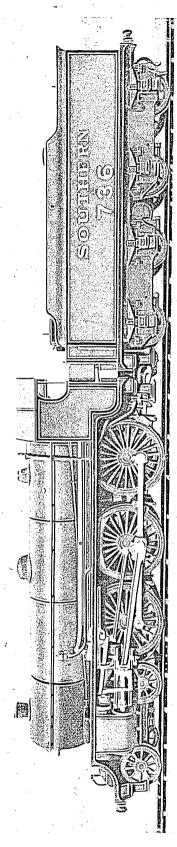
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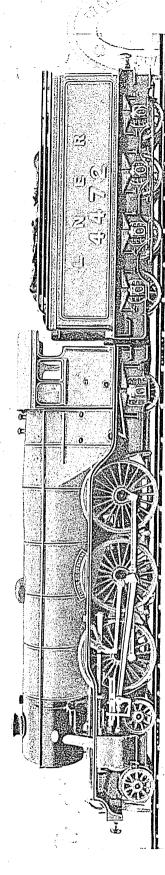
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# TYPICAL ENGINES OF THE FOUR GREAT BRITISH RAILWAYS



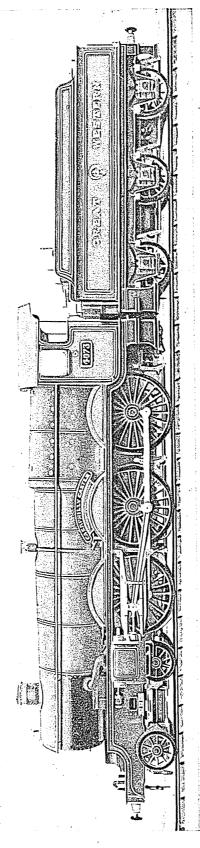
. THE SOUTHERN RAILWAY'S 2-CYLINDER EXPRESS ENGINE, NUMBER E 736



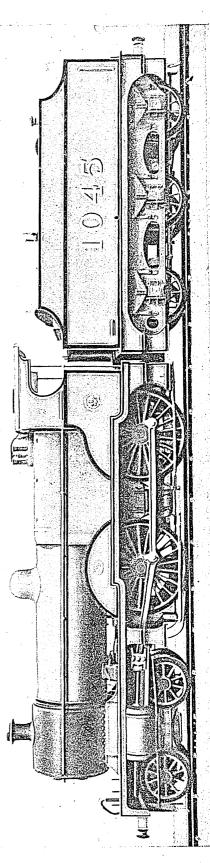
THE LONDON AND NORTH EASTERN RAILWAY'S 3-CYLINDER EXPRESS ENGINE, FLYING SCOTSMAN, NUMBER 4472

Colour Gallery

Children's Encyclopedia

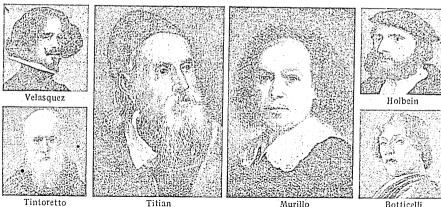


3. THE GREAT WESTERN RAILWAY'S 4-CYLINDER EXPRESS ENGINE, CAERPHILLY CASTLE, NUMBER 4073



4. THE LONDON MIDLAND AND SCOTTISH RAILWAY'S 3-CYLINDER COMPOUND EXPRESS ENGINE, NUMBER 1045

#### The Story of Immortal Folk Whose Work Will Never Die



#### THE LIVES OF THE PAINTERS

THE great painters of Europe belong to all time. Their lives come in and out of the story of Europe graciously and beautifully, like their own pictures, giving us a glimpse of humanity both strange and familiar, of hopes and ideals that are as real today as they were five hundred years ago.

English people feel that they have a peculiar claim on Holbein, one of the earliest of these men of genius. He was born in Augsburg in 1497, the favourite son of his father, who was also a painter and also called Hans. It was an ideal home for a genius to be nourished in, the father and uncle and other members engrossed in art, gladly passing on to the young Hans such gifts as they had.

When Hans was about eighteen he went with his brother Ambrose to Basle, looking for work. Very soon after his arrival he had the good fortune to meet the scholar Erasmus, who asked him to do some pen-and-ink drawings for one of his books. Hans, delighted to have a commission, worked hard at the illustrations, and in his spare time painted anything that came handy. He wandered about a good deal, studying people's faces, with never quite enough to do. His wanderings presently took him over the border into Switzerland, where he

had a few commissions and stayed a little time. In 1519 he was back in Basle. He married and settled down to work.

At first there were plenty of commissions, and the years slid by. Then came a season of political and religious unrest, and no one wanted any pictures. After a long talk with his friend Erasmus, Holbein took a bold step. He put his brushes and paints and a few garments into a wallet and in 1526 came to England.

Erasmus had given him an introduction to Sir Thomas More. The painter had come at the right moment into a country apparently destitute of artists. He began painting portraits. "The century of Holbein" began. His success was assured. For three years he painted indefatigably, and then returned to Basle with a picture of Sir Thomas More's family for Erasmus, and enough money in his pocket to buy a house for his wife and family in Basle. Unhappy times came then, the flight of Erasmus, and grave religious trouble.

The next year, after a little work in Basle, Holbein was back in England, to make some more money. There also he found changes of a political sort, and Holbein was glad to find patrons among the merchant goldsmiths in the City. Presently chance brought him, in 1534, in contact with Thomas Cromwell, and

EXPLORERS · INVENTORS · WRITERS · ARTISTS · SCIENTISTS

through his means Holbein was soon at Court again, painting those wonderful pictures which mark out that generation from any other. He drew portraits of Henry the Eighth and his wives, and also went abroad to execute commissions.

During these journeys he managed to visit Basle again, this time in the splendour of silk and satin clothes. Not many more years were left to this painter, who was not the only great artist, as we shall see, to play the part of King's messenger.

In November, 1543, one of the recurrent plagues visited London. Holbein died after a couple of day's illness, a young man in his prime, with his work half done.

The next great figure that crosses the stage of northern Europe is Peter Paul Rubens, a descendant of a long line of Antwerp burghers, who was born at Siegen in Westphalia in June, 1577. His father died when Peter was ten. A year later the widow brought her children to Antwerp and settled down there. Peter Paul was sent to school, and before he left was able to speak seven languages fluently.

# THE DUKE WHO GAVE THE YOUNG RUBENS HIS CHANCE

This lad of many tongues was gifted with a charming personality. "That amiable Rubens" he remained throughout his life. His mother had intended him to become a lawyer, but Peter Paul managed to make her change her mind.

For eight years he laboured in the workshops of the painters of distinction in his day. Then he got the heart's desire of his youth. One fine morning in May, in the year 1600, this handsome young man rode out of Antwerp bound for Italy. His first stay was at Venice, where he painted hard and studied the work of famous men. It happened that he became friendly with a nobleman of Mantua, who presently invited him to Court. The result was that the Duke of Mantua, who loved art and all beautiful things, recognising Rubens's genius, made him Court painter, and was very good to him, sending him here and there to study. He was sent into Spain with presents for Philip the Third and the Duke of Lerma.

Among the gifts were some pictures painted by Rubens, and a gay carriage with seven Neapolitan horses. Unfortunately, the voyage fell in a period of storm, and the Duke's gifts suffered somewhat from twenty days of ceaseless

rain. Rubens's pictures were almost ruined. The audience with the king was delayed while Peter Paul re-painted them.

For some time Rubens stayed in Spain, working for the Duke of Lerma; then he went back to Mantua for two more years, working feverishly. In 1608 he heard that his dear mother was ill, and he set off immediately to Antwerp. The good widow was no longer alive when her son, now a man of thirty, rode back into the city. Grief at her death made a dark place in Rubens's life for several months. Then he was swept into the deep current of his work again, as painter to the Archduke Albert. About this time he married Isabella Brant, whom he painted so often.

# THE WORDS OF WISDOM ON THE ARCHWAY OF THE HOME OF RUBENS

During the years that followed, Rubens built himself a house of which only the garden archways remain. On one of them are chiselled some lines from Juvenal that Rubens loved, beginning

A healthy mind in a healthy body is a thing to be prayed for.

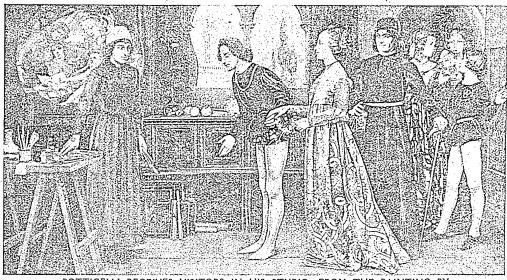
The grand house, something like a Renaissance palace, was really a simple home worked on the most regular system. Rubens rose at five o'clock, winter and summer, went to church, and came back straight to work. One simple meal broke the long labours of the day. Sometimes Peter Paul went for a ride on one of his Spanish horses—his only exercise. His evenings were given up to his friends. Rubens's house became a centre of learning and culture in the Flemish city.

The ten years that passed thus were the fullest and richest of his life. The death of the fair Isabella in 1626 broke the charm his home had for Rubens. After that he was glad to divide his time between painting and travelling.

# THE GOOD NAME THAT IS BETTER THAN RUBIES

Some important diplomatic missions sent the painter during the next few years up and down the high roads of Europe, the guest first of one Court and then another. He was knighted by both Philip the Fourth of Spain and Charles the First of England, who were at one in this, that they loved art. The University of Cambridge made him an honorary Master of Arts. But better than all honours heaped on him is the testimony of Lord Dorchester: "Rubens is known among

# BOTTICELLI, REMBRANDT, AND RUBENS

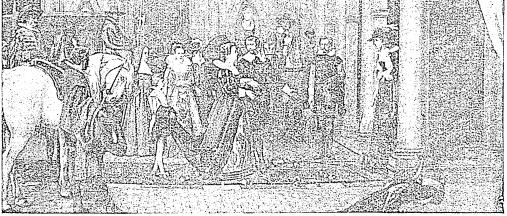


BOTTICELLI RECEIVES VISITORS IN HIS STUDIO—FROM THE PAINTING BY ELEANOR FORTESCUE-BRICKD LE



AN OLD LADY SITS FOR HER PORTRAIT
BY REMBRANDT

RUBENS'S PORTRAIT OF HIMSELF AND HIS WIFE



MARIE MEDICI VISITS THE HOUSE OF RUBENS 6675

us as too honourable a man ever to tell an untruth."

In 1630 Rubens married Helena Fourment, and tried to patch up the remnants of his home happiness. Work there was in plenty, and more ambassadorial missions. Rubens now had a large country house as well as a town mansion. To his last years he laboured like a giant, his love for his painting not marred by the fact he was now rich enough not to have to do another stroke. His children grew up around him and his old years were happy. He died of heart failure in May, 1640.

# REMBRANDT'S LIBRARY OF FIFTEEN BOOKS AND AN OLD BIBLE

Rubens, destined throughout his long life to greatness and success, was far removed from humble Rembrandt, whom Europe now delights to honour. This painter's real name was Rembrandt Harmens van Rijn, and he was born in 1606 in Leyden, a town prettily called by one old writer the eye of Holland.

His father was a miller. Rembrandt was sent to school as a preparation for the University, but owing to his dislike for study the idea was abandoned. Rembrandt never became a great scholar, like Rubens. When he was a grown man his library consisted of fifteen books and an old Bible. Whatever else he left unread, Rembrandt loved his old Bible.

The good miller sent his gifted son to various masters, and presently people were crying out that he was ready to set up practice as a portrait painter anywhere. He removed from Leyden to Amsterdam, where he lodged in an art-dealer's house, and met Van Uylenborch, the lawyer, whose daughter Saskia he married.

#### THE GREAT SORROW THAT CAME INTO THE LIFE OF REMBRANDT

The young portrait painter began very well indeed, with a house of his own and money to spare. It is estimated that he was earning from £5000 to £6000 a year during his early married life. Unfortunately Rembrandt was not a good business man, and although for ten years his success continued almost unbroken his affairs soon became very disordered. Also he had a passion for buying beautiful things. His house became a kind of museum.

Eight years after his marriage Saskia was dead, leaving one boy, Titus, a delicate lad, who did not reach maturity himself. After this sad loss Rembrandt's home life

broke up miserably. Titus, the child of his golden years, retained his father's love, but the artist's affairs went from bad to worse, ending in 1656 in bankruptcy. His grand house was sold; he was very glad to make a home in a humbler place.

Rembrandt never ceased working, but his art became unfashionable. Prices sank and sank. A mass of troubles fastened themselves like hornets on the artist.

In all these changes his industry never ceased. How much labour he got through it is difficult to say, but of his preserved works we can count about 650 oil paintings, 2000 drawings and studies, and 300 etchings. It is very sad to think that when this man of industry died in 1669, he was what we should term an undischarged bankrupt, with no personal property save his clothes and his painting materials.

Rembrandt was always a humble, quiet, home-loving man, happier with his inferiors than those of higher station. His life is singularly like one of his pictures, with a little golden light backed up by masses of impenetrable shadow.

It seems like coming from a place of storm into the sunlight to think of artists of the south, like Botticelli, Titian, or Tintoretto.

# THE NICKNAME BY WHICH A GREAT PAINTER IS KNOWN TO THE WORLD

Botticelli, the earliest of these three great ones, was known by an interesting nickname. His father, a Florentine tanner, was called Alessandro di Mariano dei Filipepi. He had four sons, of whom Sandro, born in 1444, was the youngest. The eldest, Giovanni, became a leather merchant. Outside his shop hung a little barrel, a botticello, the sign of his trade; he was also rather round in figure. From one association or another he came to be known as Il Botticello, and when the younger man rose to eminence he was at once labelled Sandro Botticelli.

Sandro was a delicate, nervous, dreamy lad; he hated his sums and his books, was restless, unhappy. The tanner took him from school and apprenticed him to a goldsmith. But even then he was not content. A chronicler of Italian painters, Vasari, says, "The boy was enamoured of painting, and opened his heart freely to his father who, seeing the force of his inclination, took him to Fra Filippo, a most excellent painter, in order that Sandro might learn from him."

# THREE OF THE WORLD'S CHIEF PAINTERS



YOUNG MURILLO PAINTING CHILDREN IN SIR THOMAS MORE TAKES THE GREAT ARTIST THE MARKET-PLACE OF SEVILLE

HOLBEIN TO HIS HOME IN CHELSEA



PHILIP OF SPAIN PAYS, A CALL ON VELASQUEZ—FROM THE PAINTING BY FRED ROE

The apprenticeship took place when the boy was about sixteen. For several years he worked for the Friar, who loved him dearly. In due course he opened a workshop of his own, and became one of the foremost painters of Florence. He still lived in his father's house. There is something patriarchal in the glimpse we get of the family about 1,480. The old tanner, aged 86, is head of a household of twenty souls, the three sons and their children, and Sandro, who "works in the house when he chooses." The family was evidently fairly well off.

# How botticelli was influenced by the preaching of savonarola

In 1481, Botticelli's fame had reached Rome, and he was summoned by the Pope to do some work there. For two years the artist stayed in Rome, painting his famous pictures, and the Pope paid him liberally. But Sandro was of a careless, happy-go-lucky disposition, very generous with his friends, and he did not bring much of the Pope's money back to Florence. He stands out in the picture made by the letters and records of his intimate friends as a gentle soul, full of stray sympathies, fond of children (he never married), with a boundless enthusiasm for great ideals.

In 1489 a change came over Botticelli. He fell under the influence of Savonarola, the great preacher, whose eloquence shook gay, self-seeking Florence to her foundations. He turned his whole thoughts to religion, meditated more, prayed more.

The next milestone in the painter's life was the death, in 1491, of Lorenzo the Magnificent, who had been friend as well as patron. His son Piero was an unworthy successor; Sandro was glad to have nothing to do with him.

As the painter neared old age, sadder years seemed to follow each other. Savonarola's terrible death made a bitter impression on his soul, and religious subjects were more engrossing to him than ever. People gathered in his studio to talk about theology and Savonarola.

# The genius who reached his prime as botticelli passed away

Sandro was now a most important painter, looked up to by all, from his friend Leonardo da Vinci to his favourite pupil Filippino Lippi. Towards the end he became infirm, unable to stand without crutches, a mere shadow of his former self. The death that came in May, 1510, was a release to his gentle spirit, which had

never ceased to respond to the beautiful and good impulses of life.

While Florence was mourning Botticelli, a man was nearing his prime whose name and fame have since gone to the ends of the earth. This was Tiziano Vecelli, generally known as Titian. He was born about 1477, at Cadore, in the Venetian Alps. When he was only ten years old he left his mountain home to stay with an uncle and learn a trade in Venice. Fortunately for the world the trade chosen was painting.

Titian studied with Gentile and Giovanni Bellini, and with Giorgione. Little is known of him until he suddenly emerges, a master, painting frescoes, and it appears that his fame had already spread over Italy. The death of Giorgione in 1511 left Titian without a rival; the world was at his feet.

It is a pity that the records of Titian's family life should be so scanty. We know that he married a fair girl called Cecilia, and that he had two sons and one daughter. Most of his biographers have been so busy explaining Titian's greatness in art that they have forgotten the little human touches that change a genius into a man. Cecilia died in 1530. To console himself the artist took to travelling.

# THE OLD ARTIST WHO HAD NO RIVAL IN ALL ITALY

Presently he was back at Venice, and he began that life, more like that of a prince than a painter, which was natural to one of his temperament. He had a grand house and combined a happy way of living with extreme industry, and appeared to condescend when he took pupils. He could afford to be proud and lofty; he was at the pinnacle of fame; he knew that there was in Italy no prince, or pope, or beautiful woman who did not long to be painted by him. He was without a rival.

At sixty Titian was still working, hale, hearty. Life appeared unending for this man favoured of destiny. He went here and there, to Rome at the carefully worded request of the Pope; and then, at the invitation of the Emperor Charles, he crossed the winter alps to Augsburg to paint some pictures. This journey was made when he was seventy. More honours were heaped on him. He returned to Venice a Count of the Empire. Generations seemed to pass him by. At 88 he was still painting. When at last he laid down his brush it seemed that he might

#### THE LIVES OF THE PAINTERS

still take it up again. Kings and princes came to visit him; he was Italy's dar-ling. When 99 he died of the plague in Venice; and although a law had been passed to bury plague victims outside the city a special exception , was made in this old man's favour. Plague or no plague, even in those terrible hours of anxiety, the city on the sea paid the final tribute to its greatest genius. He was buried with public honours in the church of Santa Maria dei Frari.

Titian it was who introduced to art the famous son of a dyer remembered now as Tintoretto, of whom we read We elsewhere. may go on now to read of an immortal Spaniard who came into the world 21 years after Titian left it. a man who was destined to carry the honours of art from Italy to Spain. This was Diego Rodriguez de Silva y Velasquez. He stands apart in the story of European painters, seeming to be free from the broils and artistic rivalries that marred so many lives.



RUBENS'S PORTRAIT OF HIMSELF, IN THE UFFIZI GALLERY, FLORENCE



REMBRANDT'S PORTRAIT OF HIMSELF, IN BUCKINGHAM PALACE, LONDON

Velasquez was born in Seville in 1500. He was the child of gentle, cultured people, and neither poverty nor opposition touched his youth. When he was a small boy he announced that he wanted to become a painter; a painter he became. He studied with Herrera and then Pacheco. The five long years spent in the house of Pacheco were very happy.

Velasquez looked back on the peace of those years when he became a powerful presence in the Spanish Court. He married his master's daughter Juana, and but for ambition would have been content to stay in Seville painting, reading, enjoying life in that cultured household. But ambition sent him presently to Madrid with an important picture that is now worldfamous — the Water-Seller.

Philip the Fourth had an eye for genius in art and letters. Velasquez was made Court printer, and began that series of the portraits of Philip and his family which have given the

world an amazing insight into the character and home of one of the great princes of Europe.

In the summer of 1629 the painter set off on his travels to Italy, and there refreshed himself greatly with the study of other people's work. Four years later he was back in Madrid, more of a favourite with the king than ever. Velasquez settled down to a life that was a mixture of artist and confidant. He saw the king every day, and became his friend.

# THE EAGLE IN THE HIGH PLACES AND THE ANGEL IN THE SHADOWS

The years were broken by other journeys to Italy. As the seasons fled it seemed to the painter himself that Velasquez was less and less an artist and more and more a courtier. He could seldom spend an hour alone in his studio. Such was the fate of a man selected to be the favourite of an egotistical and most powerful king. His duties were more arduous than one would think, his health was not good. He died in 1660, at 61.

Murillo and Velasquez follow each other across the stage of Spanish art, contemporaries and yet divided by the poles. Velasquez has often been called the eagle in art, dwelling in lofty places, Murillo the angel in art hovering in quiet shadows among little children.

Murillo's real name was Bartolomé Esteban. He was born in Seville on the last day of the year 1617. His parents were humble workpeople and lived in the Jewish quarter. Among these mean, narrow streets, where awnings kept out the fierce glare of the sun, Murillo played and worked till he was ten.

That year a swift and terrible plague carried away both his parents. From these scenes of sordidness and poverty the lad was rescued by an uncle, a doctor who lived in a better part of Seville. The uncle was kind, but poor himself, and could not afford to give the lad a decent education.

# THE EARLY YEARS OF STRUGGLE OF A GENIUS IN SPAIN

Murillo had already shown his bent in making drawings on whatever material came handy, and to his intense delight the uncle found him a place in a second-rate artist's studio. The boy had to grind and mix paints, stretch canvases, act as general odd-job boy in the studio. In his spare hours he drew, and drew incessantly. Here Murillo stayed till he was 23.

Then a change came. His master left Seville and Murillo remained there, facing the uncertain problem of making a living and supporting his younger sister. Murillo had no money, no friends, no influence. There were many days when the two had not enough to eat. A few commissions came from obscure priests to paint pictures for their churches, but no one of importance noticed the struggling artist.

Murillo did everything he could to make a living, painting gay, impressionistic pictures on squares of loosely-woven material called saga-cloth, and selling them himself in the weekly market in the Macarena, the slum district of Seville. He always took his materials with him, and sometimes he would paint one of these pictures while his customer wandered about the fair or dozed in the shade. Here the artist studied to his heart's content the happy, care-free children he painted so beautifully later on.

After a while Murillo was seized by a great desire to see the work of the artists of Europe. He painted a great number of pictures on squares of saga-cloth, and sold them to a man who was going to South America. Then, first taking care that his sister was left in good hands, Murillo took his money, and in 1641 went to Madrid and found Velasquez.

# $T^{\,\text{He}}$ helping hand velasquez gave to his friend murillo

The great Court painter did not mind associating with a black-haired, shabby-looking tramp. He gave him a room in his own house and arranged for him to see the work of great painters in the Madrid galleries. Three years Murillo spent in Madrid, copying, studying. Then he returned to Seville, and suddenly, miraculously his fortune was made.

He became a favourite, and could not paint pictures fast enough. In 1648 he married a beautiful and highborn lady, and the poor boy of the slums became the head of a grand house. From strength to strength the painter went, gaining more and more favour in the eyes of his generation.

In 1660 Murillo founded the Academy of Seville. The seasons were filled with happy, ceaseless work. Twenty years later he fell from a scaffolding while painting a picture in a church in Cadiz, was brought home to Seville, and died there in April, 1682. He shares with Velasquez the love of the Spanish people and the admiration of the whole world.

The Great Stories of the World That Will Be Told for Ever



#### THE ENCHANTED KETTLE

Japanese people think that there is something supernatural about foxes, cats, and badgers. But while foxes and cats are often evil spirits in disguise, badgers are only possessed by Puck-like spirits who love practical jokes.

Often a traveller has been startled at hearing a noise of drums in the wood, and has come upon a badger, standing on his hind-legs and playing a tattoo on himself. The poor man runs away, and hears the badger laughing.

Once upon a time there was a priest who had an old kettle which had made him many fragrant cups of tea. A day came, however, when the head, legs, and tail of a badger sprang from its sides, and it leaped off the fire. Round and round it ran, and then began to fly about the room. At last it settled on the floor, and the badger parts disappeared. The priest, shaking with fright, shut it up in a box.

Next day a poor tinker came to the village where the priest lived.

"Now I can get rid of my useless, horrifying kettle," thought the priest.

The tinker was very glad to buy it cheaply, and the priest chuckled at the trick he had played on the man.

That night the tinker was awakened from sleep by a noise in the sack where

he carried his poor belongings. No sooner was it opened than out rushed the badger-kettle, and immediately started to gambol joyfully all round him.

The tinker was not frightened, but laughed at the badger's antics. Then he thought, "If I laugh, why shouldn't others?" So he set himself to teach the queer creature tricks.

Soon he became famous as the travelling showman who had a kettle with badger's head and limbs, which walked the tight rope and danced Japanese measures with a fan in one paw. Noblemen and princes bade him perform at their palaces, and soon the tinker had made a modest fortune. Then he said to himself, "I must not be avaricious. The priest who sold me the kettle so cheaply did not know what a wonderful thing it was. I must give it back to him."

This made him sad, for the kettle-badger was a great pet to him, but he did it. Of course the priest had heard all about its adventures long ago, and learned that he need not have feared it. So he was glad to have it back again. But from that day onward it remained quite an ordinary kind of kettle. The badger head, legs, and tail never sprouted again. It was of no use except for boiling water.

IMAGINATION · CHIVALRY · LEGENDS · GOLDEN DEEDS · FAIRY TALES

#### PRÊTE À MOURIR POUR SON AMIE

This is a French translation of the story told in English on page 3134

Qui était Sydney Carton? La réponse est—Henriette Cannet.

Même ceux qui n'ont pas lu "A Tale of Two Cities" savent ce dont il s'agit: Sous la Terreur Sydney Carton change de vêtements avec un condamné à mort. Le condamné retourne à l'amour et à la liberté; Sydney Carton meurt à sa place.

Nous sommes familiarisés avec une partie de l'histoire de Madame Roland, mais non avec le rôle qui concerne Sydney Carton. Nous savons que Madame Roland était une femme de haut mérite, qui, avec son mari, accueillit avec joie la Révolution Française, parce que tous deux haïssaient la tyrannie et les souffrances causées par Mais, lorsque cette l'ancien Régime. belle promesse de fraternité se changea en torture et en carnage, ces deux citoyens courageux protestèrent. Madame Roland fut condamnée à mort par ceux-là même que son influence avait contribué à amener au pouvoir.

Tandis qu'elle était en prison, une amie vint lui dire adieu. Dès que le geôlier fut sorti, cette amie supplia Madame Roland de changer de vêtements avec elle et de s'échapper. Elle lui dit que c'était son devoir de vivre pour son enfant et pour son mari, pour les services qu'elle pourrait rendre à la France avec son intelligence et son influence sur les hommes éminents de l'époque. Sa vie était beaucoup plus précieuse que celle de l'amie inconnue qui l'interpellait.

Or, cette femme qui suppliait Madame Roland de vivre pour la France et pour son foyer était Henriette Cannet, une ancienne

amie de pension.

Madame Roland refusa d'accepter ce sacrifice. Regardez-là gravissant les degrés qui mènent à l'échafaud, vêtue de blanc, sa chevelure noire éparse sur ses épaules, ses yeux intrépides fixés sur le peuple ignorant dont elle avait essayé de briser les liens, et qui réclamait son sang à grands cris parce que ses oppresseurs l'incitaient à le faire. Sous ce tableau on devrait toujours graver ces paroles immortelles, qu'elle prononça au moment d'affronter la mort: "O Liberté! que de crimes sont commis en ton nom!"

#### THE QUEEN WHO GAVE UP HER BOY

NEAR the beginning of the sixteenth century there was born at Fontaine-bleau Jeanne d'Albret, heiress to the kingdom of Navarre and niece to the

King of France.

She hardly knew her parents, but was brought up in the country by her governess, and until she was nine she did not realise that she was kept a prisoner by King Francis in a castle on the banks of the Loire. This the king did that when she was quite a child he might compel her to marry a Protestant duke. Little Jeanne was unwilling to marry the duke the king chose, and was glad when the Pope annulled the marriage, and she was free to wed as she chose.

During the peaceful years she spent at Pau Jeanne studied and learned to love the religion of the Huguenots, the persecuted Protestants of France, and, her husband proving a worthless character, she devoted herself to their cause. On the death of her old father she became Queen of Navarre, and while dark clouds were gathering round the Huguenots she helped and encouraged them all she could.

The homeless and persecuted were ever welcome at her Court, which grew to be looked on as a haven of refuge by the

sorely-troubled Huguenots. When their leader, the Prince of Condé, fell in the battle of Jarnac, and hope seemed dead, the faithful Queen of Navarre came to their aid. She rode into the camp among the despondent soldiers, bringing with her two fine bright boys—her only son Henry, aged about fifteen, and his cousin, the now fatherless Prince of Condé, a boy of twelve, whom she had adopted.

In stirring words she rallied the little army to defend their religion and to avenge the death of their beloved Condé. Presenting the two boys, she cried: "Soldiers, I offer you everything I have; my kingdom, my treasures, my life, and, more precious than all, my children."

These words were received in breathless silence, and then, as Prince Henry galloped into their midst, the soldiers greeted him with cheers as their leader. In clear, ringing tones he swore that he

would never desert them.

Dark days were before the Huguenots, and to them the sacrifice of the Queen of Navarre seemed vain in the light of after events; yet who shall say that it was so, seeing that her noble deed revived the courage of the Huguenots, and helped to keep alive religion in France?

# STORIES TOLD TO THE CHILDREN OF POLAND

We give here a few more legends told to all the children of Poland as they grow up. Other stories, known to every boy and girl in this land of mountain and forest, are given on page 4366.

#### LEGEND OF THE GOLDFINCH

When God the Father made our world and covered the ground with lovely carpets of flowers, and made trees to grow into the wonderful temples of forests, He wanted those temples to be filled with music, so He made birds.

He made them big and small and gave them different shapes, and when they were all finished He told them to line up to be painted. So all the big birds stood first and all the little ones were at the end. It was such a long line!

And there, among the small birds, was one that was very lively—we call him Goldfinch today. He chirped and hopped and moved to and fro, and could not keep in the line. There was still such a long row of birds to be painted before his turn came.

"I must try my wings for a while; it is so tiring to stand and wait," thought the little bird; and he spread his wings and up he flew, up to the little clouds that looked so white and fluffy against the deep blue background of the sky.

He looked down; how beautiful the world was in its new, fresh loveliness! He flew from tree to tree and meadow to meadow and hill to hill, singing with joy and fluttering in the sunshine. He was so happy in this wonderful world.

Suddenly he remembered his coat had not been painted and that he had been away for a long time. He must hurry back. So he flew as fast as he could, and at last he could see the meadow where the long line of birds had been. But now there were no birds to be seen.

God had finished his work, and He had put away His paints and was

washing His brushes.

The little Goldfinch sat on a tree and sobbed. God heard him weeping and asked what was the matter. So the Goldfinch told how he had flown away to see the beautiful world, and how he was too late to have his coat painted.

God saw that he was really sorry, so He said, "Come, and I will see what I can do." So, joyfully, the Goldfinch flew to Him. The colours had all been put away, but there were still many little bits of paint on the palette; so God took all the many little scraps and made of them the wonderful coat of many colours that the Goldfinch wears to this day.

#### THE VIRGINIA CREEPER

In the beginning, when God made the plants of the Earth, He first made their stalks and leaves; and when these were finished He went on making their blossoms, painting the petals of their flowers in all the loveliest colours.

The flowers stretched their stalks when He was passing by, so that He might notice those that were not yet painted. But there was one little plant growing at the foot of an old, bare rock. She was so small and humble that she did not dare even to look up when God passed by; so He missed her, and her blossom was not painted; it was just green.

The poor little plant felt very sad at first, and wondered what she could do. The bare rock at whose feet she was growing complained of the heat of the sun that burned him. The little plant thought "I will cover him with my green leaves," and she began to grow, and to climb higher and higher until she had

covered all the rock.

One day, when the autumn had come, God sent down an angel to see all the flowers that He had made. The angel went along the fields and meadows, and saw many a beautiful thing. At last he came to the big, bare rock which he knew so well, but there was no rock to be seen; a beautiful green plant had covered its bareness.

"How beautiful!" exclaimed the angel. The little creeper heard and blushed. She blushed the most beautiful crimson, more beautiful than all the flowers.

And every year the little creeper remembers the praise of the angel, and blushes again as she thinks of it.

HOW THE HIGHLANDER CHOSE HIS WIFE

ONCE upon a time there lived in the Tatra mountains a young Highlander. He was good-looking, witty, and wealthy, so no wonder that many girls were fond of him and would have liked to marry him.

But he wanted a good wife, and he knew that good wives are not easy to find. But he made up his mind to find one, so he dressed himself in rags, covered his face and hands with dirt, and went out to look for a wife.

He knocked at the door of one of his girl friends. "Have mercy, good child, have mercy," begged he when she opened the cottage door. "I am a poor man. I have not touched food since yesterday. Give me some bread or some clothing. Look! I am in rags." The girl was moved to tears; she took some bread and some cheese, and gave them to him. He thanked her and went away.

But on the way he said to himself, "That is not a wife for me." He tried another place. Again he knocked at the door, and when the little girl opened it he said in a voice half choked with tears: "Help me, sweet child; I am a poor beggar. I am so weary and weak, for I have not tasted food since yesterday. Look at my rags. Give me some food or some clothing." The girl looked into his eyes, and said in a sad voice: "I cannot give you any food because my mother has locked the larder and she is away; but here is an old coat: take it, it will, at any rate, keep you warm."

Off went the Highland boy, thinking "This is no wife for me."

He came to another cottage, and when he knocked at the door a beautiful girl opened it. He began the same story, complaining of his misery and hunger, but the girl looked sternly into his face. She looked at his shoulders that were straight and broad, she looked at his hands that were strong, and she said: "I never help loaters. Go and work, and you will suffer neither hunger nor cold." She banged the door in his face, and was gone.

"This is the wife for me," thought the young boy, full of joy. He went home, washed his face, dressed in his best, and went once again to the girl, and asked her to become his wife. And when he had married her he knew that his choice was the right one.

#### HOW THE MUSHROOMS CAME

CHRIST and St. Peter were once walking in a forest. They had walked a long and tiresome way without taking any food, so it was no wonder that St. Peter felt tired and hungry.

He had a piece of bread in his sack, but he did not dare to take it out lest his Master be offended. What wonderful things the Master was saying! Yet St. Peter grew more and more restless; his hunger prevented him from listening:

At last St. Peter took out a little piece of bread as he walked behind Jesus and popped it quickly in his mouth. At that moment Jesus said:

"Do you not think so, Peter?"

Hastily Peter spat out the bread, and answered, "Yes, Master."

Once more Peter tried to eat, and once more, as he put the bread in his mouth, Jesus said, "Do you not think so, Peter?"

Again the bread was spat out on the ground, and Peter answered, "Yes, Master." So it was every time, till all Peter's bread was gone.

But a wonderful thing had happened, for every time Peter spat out the bread little white rounded things grew up where it fell, and they became good food to eat, and men call them mushrooms.

Now, the devil was walking behind Jesus. He saw the strange and wonderful thing that happened when Peter spat out the bread. He thought it looked so easy to make these little plants.

"Every fool can do the same," he said to himself, "but I shall make mushrooms that will be nicer and brighter than those."

So he took a loaf of bread, and he walked along biting it and spitting it out all through the forest, in the meadows, into ditches. And wherever he spat there grew wonderful mushrooms of all colours, yellow, brown, and red, and some were very much like St. Peter's mushrooms.

But when men eat these mushrooms they die, for they are poisonous toadstools.

THE SECRET OF THE FERN BLOSSOM

AVE you ever seen the white blossom of a fern? People say it grows only in fairyland, but I will tell you how it can be found.

Wait till St. John's Eve, June 23, when the tide of life is at its highest, when all the shrubs and trees are in full blossom and the woods are teeming with wild life. That is the time to start on your quest. Go out into the deepest forest and take no companion. However dark the night may seem, fear not, for it is in loneliness and darkness that you may find the blossom.

You will have to cross many a well-marked path, many smooth roads; but keep away from them; they lead to human dwellings where ferns never bloom.

And when you become tired and weary, and your feet are sore and your heart sad, when thorns and thistles block your way so that you are scarcely able to move, then look out for the blossom; it is nigh. You will come upon it quite suddenly, when you least expect it. There it will be at your feet, white and lovely, shining like a star among the leaves of the ferns.

#### STORIES TOLD TO THE CHILDREN OF POLAND

Take it, and hide it in your bosom. From this moment you are the richest man in the world. All the world is yours, with all its bliss and wonder. There is no sorrow now that can reach you, there is no pain that can hurt you, there is no darkness that cannot be lightened by the shining radiance of the blossom you have hidden on your heart.

#### DOGS, CATS, AND MICE

In the old days, when dogs and cats and mice lived in perfect harmony together, the dogs asked the cats to keep certain documents of great importance safely till they came back for them.

The cats looked at the pile of old papers, and they thought, "Why should we be bothered with these old scraps of papers? Let us ask the mice to take care of this queer treasure; it is just what they are fit for." So they did, and the mice promised to keep an eye on the documents, so that nothing should get lost.

Meanwhile winter came, and a hard winter too. The poor little mice suffered from hunger and cold. There was no grain or food left for them. Being in despair, they began to nibble at the old documents. The paper was not so bad after all. So they gnawed and nibbled and ate the best parts, and tore the bad ones into tiny shreds, till there was not one whole piece.

At last one day the dogs wanted their documents back, so they went to the cats. But the cats said, "We thought it would be safer to give your documents to our friends the mice, so they keep them. Now we will go and fetch them for you."

So off they went. But instead of the documents they found only scraps of paper lying on the floor.

The cats were furious. They vowed to kill every mouse they ever met in their way. But the dogs, when they heard the sad news, got angry too, and they began

to chase the cats, and they have never stopped doing it since that time.

#### THE HERO OF KAVALA

Kavala, which is a seaport on the coast of the Aegean Sea, had been captured by the Bulgarians. When disaster fell upon the Bulgarians they were afraid their army might be surrounded if they maintained their position, and so withdrew the bulk of it, leaving the fortress in the keeping of two hundred men. These men, before leaving to follow the main army, were to burn the town, so that it might not fall into the hands of the enemy.

News of the decision reached the horrified inhabitants. They learned that the soldiers were collecting stores of petroleum; they heard them sharpening their bayonets, saw them loading their guns. The poor people shut themselves in their houses, expected death, and prayed for life.

Only one man did not give up hope. A Turkish fisherman looked out across the waters and saw the island of Thasos, eighteen miles across the sea. There lay the Greek fleet, and Greece was at war with Bulgaria. So when the sun went down, and only the pale stars lit the way across the waters, the brave boatman, creeping in the shadows past the sentries, stole down to the beach, launched his boat, and stole out of the bay, through the searchlights which lit up the waters round about him. His safe escape seemed miraculous. It was, he said, as if a great

hand were stretched above him to hide him from the lights.

With a beating heart and straining muscles he set out to row the eighteen miles to Thasos. Early in the morning he reached the island, glided in among the Greek warships, and cried out to a battleship, "For the love of Allah and for the love of your God, come quick, for at sunrise the Bulgars sack Kavala."

The answer was immediate. A Greek gunboat got up steam and set out swiftly for Kavala. As the sun climbed up above the horizon the people of the town heard a cry from a watcher on the shore: "The fleet! The Greek fleet!"

Then the inhabitants of Kavala knew that they were saved, for with the Greeks there the Bulgarians would not attempt to sack the town.

Doors and windows were flung open. The people rushed with joy into the streets and down to the shore, and as the captain of the ship that had come to save them stepped ashore they seized him in their arms and carried him shoulder-high at the head of a procession of sailors.

At the back of these stalked a figure in a red fez, stumping stolidly along and nodding contentedly. It was the valiant Turkish fisherman who had rowed to Thasos and brought back the Greek fleet

to save the town.

#### A JAPANESE SPARROW

INCE upon a time there lived in Japan an old couple who had tamed a sparrow. Every day he came to be fed, and fluttered about their house, sometimes alighting on their shoulders, where, quite at home, he would chirp as though he were on a forest tree.

One day the old woman was in the garden when her bad-tempered neighbour called out: "You won't see your precious sparrow again. He came eating my rice, and I've cut his tongue out." The spiteful

woman laughed.

The poor old couple were filled with sorrow. They feared the bird would starve, and they felt sure he would never trust

himself near a human being again.

As they could not rest at home they wandered into the woods calling the bird. By and by they came to a clearing. stood a most beautiful little house, only a few feet high. The sliding door was pushed aside, and out flew their sparrow, followed by his wife and little ones, all twittering a welcome in which the old people could plainly distinguish words.

"How glad I am that my hosts should be my guests!" cried the sparrow. "How happy I am in this enchanted place to be able to tell you how thankful I am for the

love you have showed me!"

In and out flew the sparrows, bringing toy-like mats and bowls and cups, which grew quite big as soon as the old couple touched them. They all feasted together in the forest. The baby sparrows hung lanterns from tall plants, and then danced and played the lute to amuse their guests.

At last the old couple said they must return. Then the father sparrow brought two little baskets, which he laid at their feet. "One is heavy and one is light," he said; "which will you have?"

The old people chose the light one, as they were not strong enough for great burdens. After tender farewells they returned. The basket grew from the size of a walnut to that of a trunk, and when they opened it at home they found it filled with brilliant silks, glittering jewels, all

the loveliest things fairy hands could have packed into it. Never more would they be

cold or hungry.

Their neighbour, hearing their cries of excitement, ran in. As soon as she learned their story she hastened away to the woods. She came to the little house and knocked at the door. Out came Father Sparrow, and looked at her sternly.

The woman said she was sorry she had cut his tongue out, but everyone is apt to lose her temper sometimes! She hoped he would overlook it, and give her a present in memory of their having been neighbours.

Without more ado the sparrow brought out two baskets. The greedy woman chose the heavier, and set off for home without wasting breath on a thank you.

The basket grew and grew, till her arms ached and her back was nearly broken. Only the thought of treasure enabled the exhausted woman to drag it home. With weary hand she lifted the lid. Out sprang two enormous goblins, who carried her off to the dismal place where those who ill-use animals are punished as they deserve.

#### EDH CAVELL

Most of us remember the day when a brave woman came with a sudden glory into the old, old story of Little Treasure Island. She was Edith Cavell,

an English nurse.

Being in Belgium in the Great War, it mattered nothing to her whether she was nursing friend or foe. She was the friend of all who needed her, and even Germans she nursed back to health. But one thing this brave woman could not bear: she could not bear to see the German Army forcing Belgians to work against their country. - She could not bear to see these men enslaved by German conquerors. And so she sheltered them, and helped them to escape to Holland or to France. She risked her liberty in doing so, and one day the Germans found her out, found her guilty of being kind to suffering people; and for this they sentenced her, not to a short imprisonment, not even to penal servitude, but to death.

The ambassadors of other nations appealed in vain against this savage deed, and one night in the dark a German firing party took this woman to a garden, and an officer took a pistol from his belt and shot her dead. She died like a daughter of England. Too proud to feel scorn of her enemies, too noble to hate them, she left this message, which will ring for ever down the corridors of time:

Standing as I do in view of God and Eternity, I realise that patriotism is not enough. I must have no hatred or bitterness towards anyone.

With this noble farewell to the world Edith Cavell reached the gate of heaven.

#### THE DOOM OF THE CHILDREN OF LIR

FIRST of all came a beautiful woman, riding a grey horse with scarlet harness. Her gown and mantle were of green, embroidered with silver and clasped with jewels. There were bracelets on her arms, and a gold circlet on her black hair. She was beautiful as a falcon or a leopard is beautiful, not as a fawn or a dove.

It was Ecfa, second wife of Lir, one of the fairy chiefs who ruled Ireland thousands of years ago, before the invasion of mortals caused them to become invisible and hide in the hills. She was going on a visit to King Bov the Red, and with her she took her three step-sons and stepdaughter. She was jealous of them, and and snatched a sword from the man who was standing nearest to her.

Fionuala, the little girl, stood before her three brothers, who clung to her, trembling before Eefa's furious air. Suddenly the Queen's hand dropped: she could not do the terrible thing. Instead she began to recite a magical curse upon the children.

This was the doom she pronounced on the children of Lir: they were to change into white swans. Three hundred years they were to spend on Lake Derryvaragh, three hundred on the Straits of Moyle, and three hundred on the Atlantic by Erris and Inishglory. After that, when "South weds North," the enchantment would end.



THE PRINCE COMMANDS THE PRIEST TO GIVE HIM THE FOUR SINGING SWANS

her visit was but a pretext to get them away from their father and do them harm.

After her came one or two serving women and a little group of men with swords at their sides and sharp spears in their hands. Four of them carried each one a child before him, pretty children, royally dressed.

Presently Eefa called a halt in a desolate place near Lake Derryvaragh. Then, as calmly as if she spoke of fowls or swine, she said that the children must be killed, that she would tell a lie to shield the men who obeyed her, and reward them richly.

Though she was their queen, and powerful in witcheraft, a cry of horror rose from her servants. The wicked woman exclaimed that she would do the deed herself,

The Queen ceased speaking, and in the blink of an eye there were no children to be seen, but four white swans, who rose in the air with human cries, and beat their way to the waters of the lake.

Ecfa and her servants went on in silence. But as Bov stepped forward to welcome his friend's wife her servants cried to him not to touch her guilty hand, and told him what she had done. Then Bov in his wrath cursed Ecfa, and she was turned into a bird with a human head, that flew screaming away, never to be seen again.

Boy came to Lir with his bitter news, and the two set off sorrowfully for Lake Derryvaragh. The four white swans came swimming to them, and greeted their

#### SON-OF-A-PEACH

THERE was once a poor old Japanese couple who suffered greatly from want, for they had not strength and

health enough to do much work.

Often they wished for sons and daughters who would have helped them. One day the old woman was washing clothes in the stream when she saw an immense peach floating towards her. She drew it in, delighted to think what a good meal it would make her husband, for it was nearly as big as a melon. However, the fruit burst open, and there lay a lovely little child.

The old woman's joy knew no bounds, for she saw that Heaven had taken pity on them and sent this child to comfort their old age. The old man was equally rejoiced, and called the newcomer Son-

of-a-Peach.

He grew ten times faster than other children, and every tree he touched seemed to bear ten times as much fruit. The poor little garden flourished like a king's when he began to tend it. Best of all, he was so sweet-tempered, so cheerful, so unselfish, and so brave that everyone loved him.

One day he said to his father, when his

mother was not near:

"I have heard of an island not far from the mainland where a band of goblins live. They make raids on the country and carry off children. They plunder and kill. I should like to go and fight these wicked monsters."

The old man's heart sank at the thought of losing his son, but he said to himself:

"He was sent by Heaven, and perhaps it is Heaven's will that he should deliver people from the goblins. I have no right to hold him back."

So he gave Son-of-a-Peach permission to go, and some money for the journey. It was not much; the boy spent it all

on provisions, and set off on foot.

At the end of the first day's journey he sat down in a wood to eat his supper. A big dog jumped out of the undergrowth, and said:

"If you don't give me food I will

tear you to pieces! I am starving."

"If you threaten me," replied the boy calmly, "you shan't have a crumb, but if you ask civilly I shall be pleased to give you half my ration."

"Please, honourable sir," said the dog, with a bow, "give a hungry fellow a cake, and tell him where you are going."

When Son-of-a-Peach told him what he proposed to do the dog said:

"That's an adventure after my own heart. Let me come as your squire."

Son-of-a-Peach agreed, and they slept side by side. At the end of the second day's journey, as they were talking of their plans, a monkey dropped out of the tree above. The dog sprang at him, but Son-of-a-Peach pulled him off, and the monkey cried that he had heard their conversation and wanted to enlist in the expedition. The dog growled jealously that they wanted no mischievous apes, but Son-of-a-Peach said he might come.

Soon after a pheasant flew down to pick up the crumbs of their supper. The dog flew at him and pulled out two tail feathers before the boy could catch him. The pheasant sprang to the boy's shoulder,

and said pleadingly:

"Let me come with you too. I shall not eat half so much as your other companions, and I can show you a short cut to the island."

So next day the boy and his three retainers arrived at the shore. Quite close they could see the lovely island

and the fortress of the goblins.

First of all Son-of-a-Peach went to the nearest village and asked for the loan of a boat and a sword. Seeing his strange company, the people thought he must be something supernatural, and dared not refuse. They soon rowed off, and landed on the goblin island.

After hiding their boat in a cave they advanced cautiously. Presently they heard weeping, and saw two lovely maidens washing linen in a stream. Son-of-a-Peach did not dare to speak to them in case they should be startled and cry out, so the pheasant fluttered up

and whispered gently:

"Why are you weeping, maidens?"

"Once we lived in palaces," one replied, "but now we are slaves to the four demons who live in that fort. We shall never see our homes again. Perhaps they will kill us soon."

"I and my comrades," said the pheasant importantly, "have come to deliver you. Tell us, how would it be best to attack

your wicked masters?"

"Come to the fort at dusk," said the maiden, "when the demons are sleepy with wine and food. We will open the side door to you. Pray Heaven you do not fail, for if you do I shall have to make

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a pie of you, and it would break my heart to do that!"

"We are invincible, never fear," said the pheasant, and returned to his friends.

The four lay in hiding till dusk. They saw lights in the fort, and heard music. One of the slaves was playing to the demons. The door was ajar.

In they rushed. The dog sprang at one demon's throat, the ape strangled another, Son-of-a-Peach cut off the head of a third, and the pheasant pecked at

another one's eyes so that he was helpless, and the boy soon killed that monster too.

The castle was full of treasure, which Son-of-a-Peach gave to his old parents. He took the maidens home to their royal father, who made the four rescuers noblemen. Then for the rest of their days they wandered about Japan slaying monsters and helping the weak, till every one of them was as famous as Jack the Giant Killer. But the dog never quite got over his jealousy.

#### THE BOY AND THE AMBASSADOR

DURING a very wild and dreadful period in French history called the Commune, when cannon were firing all day long in the streets and it was unsafe to stir abroad, Mr. Edward Mallet was acting as British Ambassador in Paris.

One day as he passed the window of his office he glanced down at the courtyard below, and noticed a little shrivelled boy staring pathetically up at the windows. Later on, passing the window again, he saw the little boy still there, and, being struck by his presence in the courtyard of the Embassy, he rang a bell and sent one of his secretaries to inquire what he wanted.

He learned that the boy had asked for the Ambassador, and had refused to tell any of the secretaries what he wanted. It seemed an absurd thing to do, but the Ambassador ordered the little urchin to be brought to his room.

The boy was neatly dressed, and his manner was perfectly composed. He seemed to be about eight years old. It amused the Englishman to notice that this tiny French child had all the confidence of a man of the world.

He told his story quite simply. He lived with his mother and two servants in an avenue where there was always fighting, and the dreadful scenes were making his mother very ill. "I take care of my mother," he said. "There are two woman servants, but they are no use; they are more frightened than we are." He wanted to move his mother to a quieter part of the city, but could not do so because they had no money. He needed about twenty pounds. When the postal service was working again properly he would be able to pay back the Ambassador. In the meantime, would the Ambassador kindly lend the twenty pounds?

You can imagine the surprise of the Englishman. He found out that the

boy had come to him without telling his mother. After a great many questions, however, he determined to trust the little child. He handed the boy the money.

child. He handed the boy the money.
"Thank you, sir," said the boy, and departed. The Ambassador dismissed the matter from his mind. But when quiet was restored in the city the little boy came to him again.

He told a terrible story. The street into which he had moved his mother turned out to be worse than the other. Blood had been shed all day long in front of their windows. The shells had exploded against their walls. They had been unable to get out to buy food. In the back room of their lodgings they had cowered and starved, expecting every moment to be killed.

"My mother's nerves have been greatly shattered by what she has gone through," said the serious mite. "I think it is better to take her away from Paris, and I have decided to move her to Wiesbaden. I think that rest will bring her round. I have made all the arrangements, and I shall take her away tomorrow evening."

And then he pulled out a little pocketbook and produced the twenty pounds.

"I have brought you the money as soon as I could, sir, and my mother and I are much obliged to you. Good-bye, sir. Thank you very much."

With that the little fellow held out his hand, and departed.

This is quite a wonderful story for all its shortness. This little boy, living with his invalid mother and two terrified servants, had summoned up the courage of a man, and in a time of bloodshed and panic had made himself the protector

of the household.

It shows what even the youngest can do when responsibility calls for the display of brave and manly conduct.

# OEDIPUS AND SAD ANTIGONE

A NTIGONE was the daughter of Oedipus, King of Thebes, but the princess was not as fortunate as the poorest bonds-

woman in the palace.

Her grandfather, King Laius, had been told by an oracle that his own son would kill him. Accordingly, as soon as Oedipus was born Laius ordered a servant to kill the baby. This man carried the poor infant to a lonely place, and there tied him to a branch by the heels. But a kindly shepherd found the child, and brought him up without knowing who he was.

When Oedipus grew to be a youth other boys used to taunt him with being a foundling. This made him so wretched that he journeyed to Delphi to ask the oracle there who were his parents. The oracle did not answer his question, but warned him: "Do not go home or you will

slay your father."

Oedipus misunderstood the message. He thought that his home was a shepherd's hut, not a palace, and that the father he would slay would be his adopted one. So instead of returning to the village he wandered on into his true father's dominions. By and by, as he was climbing a narrow mountain path, he met two richly-dressed elderly men. One ordered him out of the way insolently. Oedipus refused to obey, and the other drew his The homeless youth was in the mood for a fight. His weapon leaped from the scabbard, and he fought savagely. Both men attacked him, but in the end his youth and hardihood gained the victory. Both the strangers were killed. He could not know that he had slain his father Laius and a courtier. On and on he wandered, miserable and aimless.

It was a long time before the bodies were discovered, and the motive of the murder remained a complete mystery. Creon, the dead king's father-in-law, became regent. Shortly afterwards a terrible monster descended on Thebes, half beast and half human, and colossal in size. It was none other than the Sphinx. It lived on human beings. No weapon could pierce its hide. No bribe that was offered would induce it to leave the realm.

"I will go back to my own land," it cried to the royal messengers, "when a man can answer my riddle: What animal in the morning walks upon four feet, at noon upon two, and in the evening upon three? Whoever gives a wrong answer I shall down."

I shall devour."

Creon proclaimed that the man who solved the riddle should be given the crown of Thebes. Oedipus heard of the decree. As a beggar's life was not much to lose he decided to risk it.

He confronted the Sphinx in its lair and said: "A man in the morning of life walks on hands and feet; when he has reached manhood he walks on two legs; in the evening of life he supports his aged limbs

with a stick."

This was the true answer. The angry Sphinx dashed its head against the rock and killed itself.

Oedipus was made king, without ever suspecting that one of the strangers he had slain long ago in the mountain duel was King Laius. He married, and had a daughter called Antigone and two sons called Polynices and Eteocles. For long years all was happiness, but presently a plague visited Thebes. The oracles were consulted, and said that the plague would go when the murderer of Laius was banished from Thebes.

Oedipus ordered men to search the past till they could discover him. Their investigations at last brought to light not only the whole story of Laius's death, but also the secret of Oedipus's birth. When he learned that he had killed his own father the despair of Oedipus was so great that he put out his eyes, crying, "I am not worthy to see the light!"

Then he consulted the oracle asking: "What is the name of the place where

Oedipus will die?"

"It is a sacred grove near Colonus, in Attica," answered the oracle.
"Let me set out for that place now," said the blind king, "for I do not desire to

live any longer.

So he left his palace. With him went faithful Antigone, guiding the sightless man, and weeping as he wept. When they came to the grove Oedipus told her to let go of his hand. He walked forward alone. Suddenly the earth yawned under his feet, and he descended into the Underworld to meet his father's spirit.

Poor Antigone returned broken-hearted to Thebes. Her brothers had decided to reign in turn, for a year at a time. As the months sped by Antigone's wounds began to heal a little. Her chief comforter was her great-uncle Haemon, who loved her dearly. But soon fresh troubles came to her. The brothers fell out. Civil war followed. Both were killed in battle.

Creon was made regent until Eteocles's little son should be old enough to govern. The first thing he decreed was that Polynices, who had done most to cause the bloodshed, should lie unburied. If anyone put his body in a grave that person should be buried alive.

Terrible as the threat was Antigone could not bear to think of her brother left a prey to wolf and vulture. She stole out at night and buried him. But she was seen and denounced to Creon next day. In vain did Haemon beg for mercy. Creon could not be induced to break his word. The executioners stepped toward Antigone, but before they could lay hands on her she had stabbed herself.

The tragedy of Oedipus has often made men ask: Why should he have been so heavily punished for a crime committed in ignorance? But the story is founded on an unshakable law of Nature. Wrongdoing always brings suffering. A man who leads a drunken life ruins his health, and his innocent children are often stricken with blindness, insanity, or lesser illnesses. This is not punishment by Heaven, it is simply a law of Nature, like the law of gravity, which makes a dropped thing fall to the ground. The story of Oedipus, the parricide, means: If you put your hand in the fire it will burn, and if you are blindfold when you do it still it will burn.

#### LAOMEDON, BREAKER OF PROMISES

When Troy was a-building under the orders of King Laomedon there was anger in the home of the gods. Neptune and Apollo had disobeyed their king, Jupiter. As a punishment he exiled them to Earth for a year.

Laomedon was startled when the glorious sun god and the weed-clad sea god appeared before him. They told him who they were, and offered to help him to build Troy if he would give all the first-born of his cattle to their temples. Laomedon agreed to this.

For a year the gods worked faithfully, and then they returned to the Heavenly Hills. But Laomedon could not bring himself to part with so much as a lamb or kid in fulfilment of his promise. After a while sickness broke out among his people, and then a great tidal wave came out of the angry sea, destroying the crops. Laomedon was thoroughly frightened, and asked an oracle how to appease the gods.

"Instead of first-born cattle," came the reply, "you shall offer a Trojan maiden to the gods each year. She shall be chained to the rocks at low tide, and at high tide a sea-monster shall come for the sacrifice."

The maidens of Troy were assembled, and cast lots for the honour of dying for their country. Six times a noble maiden gave herself to the monster's jaws. Then it happened that the lot fell to Hesione, daughter of Laomedon.

The king loved this girl even more than his warlike son Podarces, or his hand-some son Tithonus. She was the dearest thing in his kingdom, and he would have died to save her from the doom. While he was wailing upon his couch a messenger came to say that a stranger was in the

town declaring he could deliver the Trojans from the monster if it were made worth his while.

Laomedon sent for him at once. The stranger was no other than the famous hero Hercules, mightiest of men.

"Ask what you will!" cried the king.
"There are many fine horses pastured near the shore," replied Hercules. "I would rather have them than gold."

"They are mine," said Laomedon, "and they shall be yours if you can kill the sea-monster."

That night Hesione slept in the palace while Hercules took her place on the rock. At dawn he returned, his massive club stained with the monster's life-blood. Great were the rejoicings in every Trojan home. But Laomedon, now that he had nothing to fear, refused to give Hercules the reward he had promised.

The hero was so indignant that he persuaded Telamon, king of Salamis, to besiege Troy with him. Laomedon perished in the war. His children were taken captive, but Hesione was so well treated that she became reconciled to the victors, and consented to marry the ally of the man who had saved her from so terrible a fate.

When she was Queen of Salamis she redeemed her brother Podarces from prison, and he took the new name of Priam, which means ransomed. Hercules, who only wanted his horses, not the crown, helped to establish Priam on his father's throne. Priam and Hesione would have given many herds of horses to restore Laomedon to life, but he had sentenced himself to death by his meanness.

#### THE MEN WHO CHOSE THEIR LIVES

This is the story of Er, told again from the famous Republic of Plato, written 23 centuries ago-

TEN days after the battle in which he had been killed Er was carried home.

The colour still lived in his cheeks, as though he only slept, but he was covered with wounds and cold as ice. A funeral pyre was built two days after the sorrowful return. As the mourners gathered round to take a last look at their dear one before the pyre was lighted his eyelids fluttered, and his lips parted in a sigh.

How their hearts leaped! Never was such happiness. Er was carried in to his bed, and nursed back to strength. Then

he told an extraordinary story.

After receiving his death stroke he found himself journeying over a plain with many others. At length he came to a place where judges sat examining all who came. Some were sentenced to take the right-hand road up to Heaven, and the others told to take the left-hand road down to a place of punishment.

Filled with awe, Er awaited his turn. When it came he was told that he had not been summoned for judgment, in order that he might carry back to men an account of the after life. He drew aside,

and watched.

Besides the newly-sentenced going up and down he saw those who had finished their punishment coming up, tired and travel-stained, from the under-world, while those who came back from their heavenly reward were shining and tranquil. Greetings passed between many of them who had known each other on Earth as they gathered in a large meadow near the place where the judges sat. Many questions were asked. A thousand years had passed since these people died. The sinners had suffered ten times over all the injuries they had done others, while the good had been ten times rewarded for the acts of mercy and charity they had done.

One former sinner told a friend from Heaven that when his time for leaving the under-world was at an end he and his companion were led to the mouth of a hole leading to the upper air. When one of them, King Ardiaeus the Great, approached the hole bellowed terribly, and the fierce porters of the place declared it was a sign that he had not repented, and dragged him away. "Nothing," he said, "can describe our terror lest the hole should bellow at us, or our relief when we were suffered to pass through."

For seven days all the spirits rested together in the meadow. Then they set out on a three days' journey till they came to a place of great light, where Necessity sat spinning her magic distaff, which uttered a heavenly tune as it turned. Near her on thrones sat her three daughters, the Fates, clad in white, chanting of the past, the present, and the future.

An interpreter who had conducted the souls thither led them before Lachesis, the Fate who presided over destiny. In her ap lay a number of lots, which the Interpreter sprinkled among the crowd, saying:

"Thus saith the maiden Lachesis, the daughter of Necessity. Ye short-lived souls, a new generation of men shall here begin the cycle of its mortal existence. Your destiny shall not be allotted to you, but you shall choose it for yourself. Let him who draws the first lot be the first to choose a life which shall be his irrevocably. He who desires virtue and happiness shall have more of them. The chooser, not Heaven, decides."

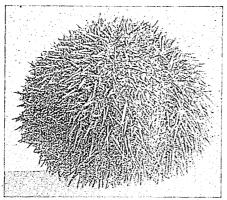
When every soul had picked up a lot the Interpreter took from Lachesis a great number of tablets, on each of which was inscribed a plan of life. He spread them out on the ground. Some were human and some were animal, for the spirits of men and beasts were present. Some were high, some were low, some were packed with glory or shadowed with sorrows, but none were wholly joyless, and there were many more to choose from than choosers.

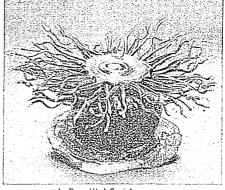
One by one, in the order of their lots, the spirits chose. The first went eagerly forward, and chose the lot of an absolute despot, but so hastily that he did not examine it carefully first, and afterwards saw that the despot was destined to kill his own children. Then, too late, he began to lament and to blame Lachesis for his own bad choice.

Er saw that the spirits from heaven often chose foolishly, while the former sinners, schooled by suffering, showed much care and wisdom. He guessed that the foolish spirits from heaven had lived easy, untempted lives on Earth, unlike others who had won their way to Paradise by struggling against great difficulties.

Er saw strange things. Orpheus, who was stoned to death by women, chose to be a swan rather than have a woman for his mother. Brave Ajax chose to be a lion. Agamemnon, rather than taste again the treachery of mankind, chose to be an eagle.

#### Nature's Wonderful Living Family in Earth and Air and Sea





Common Sea-Urchin

A Beautiful Sea-Anemone

#### QUEER AND LOWLY CREATURES

ONE of the oddest things that ever was alive is surely the sponge, the Companion of the Bath. Let us examine him with respect and intelligent questioning.

Like the child to whose comfort and cleanliness it ministers, it once had life, movement, appetite, and, in its early youth, extreme activity.

This curious honeycombed substance, so light and elastic when dry, so soft and collapsible when wet, is simply the skeleton of an animal, and if we catch that animal young enough we may see it scurrying about in the sea with preposterous seriousness, as if it would "sail beyond the sunset and the baths of all the western stars" until it dies.

The lower half of this fussy little navigator is bearded with hair-like processes waving like tiny oars or arms, and so propelling it through the water. There must be something almost like thought in the nervous product of this small organism, for when it desires to progress in a straight line, it does so, approximately, but when it no longer directs its course it stops and its still-waving cilia make it spin like a whirligig beetle in the garden pond.

This consuming activity is of short duration. Like the baby oyster, the youthful sponge thinks better, or worse, of its policy of adventure; it sinks to the bottom of the sea, attaches itself to rock or weed, or to some shelled animal, and its roamings are at an end.

The oval body with which it set out in life undergoes marked changes. The ciliated part is drawn inwards, and the globe-shaped little creature becomes cup-shaped. Within there is busy reconstruction of parts. The cell masses are converted into canals in which a jelly-like mass of flesh is resident, equipped with more of the vibrating processes to draw water and food into those canals.

The small openings in our bath-sponge are the canals by which water is conveyed to bear life-sustaining oxygen to the sponge and also to feed it. Each draught of water taken in contains organic and vegetable matter which, caught and strained away by a delicate membrane at the junction of the little canals, is digested in the sponge's alimentary system, while the exhausted water, together with waste products of the body, is then forced out of the large openings which we observe, and so all is well.

The sponge grows as it feeds; it gives rise in due course to eggs which at the right time are washed out of the parent body in the flood of water ejected from

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the main channels to hatch into free roving little animals which become sedentary.

Catch a sponge alive, confine it in a seapond, and let it have a sufficiency of water for breathing and nutriment, and it will continue its growth. When sponge fishers have little sponges or excess of larger sponges in hand, they do keep them in this way, and feed them in the manner indicated, so making it possible for us to have our little joke as to giving the sponge his breakfast.

# THE LIMY SPICULES WITH WHICH THE SPONGE DEFENDS ITSELF

Before the sponge can be sent to market its skeleton must be freed from the slimy contents which constitute its vital parts, and from the sand, mud, worms, and other parasites which take up residence within it. A more serious difficulty is the mass of limy spicules which it contains. These are as much part of its fabric as the substance with which we wash. They are a stiffening and a defence. They occur in great numbers in the walls of the canals.

Often we receive a severe scratch or scrape from a new sponge, the reason being that the substance has not been entirely freed from these spicules, and we all know how difficult it is to remove them from the sponge without making ugly rents in it. The paint work of many a good car has been scratched and spoilt because chauffeurs are too indolent or ignorant to look beneath the surface of a coarse sponge for the shell-like mass of limy spines left by the man who prepared the sponge for sale.

The finest sponges for the toilet come from the eastern Mediterranean. These are sponge-fishing grounds of immemorial antiquity, and supplied Aristotle with the specimens which he declared to be animals, 2000 years ago, though men less wise contradicted him down to the middle of the nineteenth century.

# THE DIVERS WHO GO DOWN INTO THE SEA TO LOOK FOR SPONGES

Larger sponges come from the waters of Florida and the West Indies, good but not equal in quality to those of the Old World. Contributory sources are the Bahamas and various areas of the Pacific. Methods of collecting the sponges differ, from the enterprise of the fully-clad diver, and the naked native with his foot in a rope tied to a stone sinker, to the longshoreman who, wading into the water, rips off his sponges from the rocks by means of a pronged spear, and so spoils half of them.

So far we have mentioned only the sponges of economic importance, and but one method of reproduction. In most cases multiplication is effected by the budding off of miniature sponges from the parent. We can watch this process for ourselves in the case of one of the freshwater sponges, the Spongilla. Life passes from the parent sponge with the fading of summer, but from its substance new life takes rise, to drift away with the spring and form new sponges.

As Nature takes more than one means to increase her store of sponges, so she has claimed many situations for this branch of her children, inshore waters, deep-sea abysses, and all the ranges of soundings between. Silicious spicules enter into the composition of them all, but in the socalled glass sponges the silica is of the thinnest, most brittle texture. Yet this extraordinary substance serves as an anchorage in the Japanese Hyalonema, which is attached to the mud by a bundle of strands of "glass rope," which might have been produced by a human glass-blower of unrefined art. In the Semperella, the attachment is not a glass rope but an amazing glass-like spicule, as thick as a man's little finger and nine feet long.

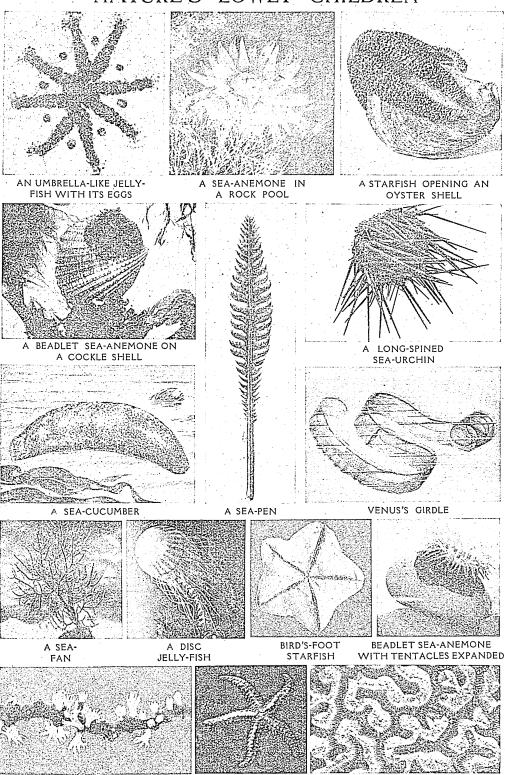
# How the sponges help to make the . White walls of old england

There are multitudes of sponges with six-rayed spicules in the chalk of our land, and a lovely kind, the *Ventriculites*, shows us how old is exquisite ornamentation in the scheme of things. Our very flints, dug from fields and from the chalk which once had life, have sponges in their composition. A sponge is often the nucleus of these stones, and the siliceous material of which they are fashioned is derived very largely from the spicules of sponges that fed and flourished in ages that are gone.

But if sponges help to form the white walls of Old England, they help to destroy those walls, too. There are forms of these animals which, by some mysterious power, can not only wear their way through the shells of oysters, but tunnel our chalky cliffs.

Most of us who visit Dover have seen chalk there actually toppling or lying where it has fallen from that height to which the blind King Lear was led. If we could see in advance the place from which such falls occur, we should probably find that sponges have been the enemy

# NATURE'S LOWLY CHILDREN



RED CORAL

A STARFISH

BRAIN CORAL

The pictures on these pages are by Messrs. Berridge, Martin Duncan, Johnson, Ward, and others

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within the gates. They bore deep in the yielding chalk, open the way for disrupting water, and make destruction sure, if slow.

Of course, we must not lay the blame for this sort of work to the account of the sponges which we see by the sea between high tide and low; each genus has its station, its own sea-keep, its home in fresh water, its way upon the rock. There is the bread-crumb sponge, a colony of many sponges, living on our shores; there are the Mermaid's Gloves cast up, living, every rough tide, and sponges of all sorts through all seas, till we come to the tremendous Neptune's Cup, a marvellous piece of architecture, three or four feet high, built up by many sponges which act as one, which raise the great stalk, then the vase-shaped cup, and make it lovely as the work of an old Etruscan potter.

A story passing the invention of man's imagination runs through all this. Deep in the fiery crucible of the Earth mineral boils like water in a kettle, and by volcanic action bursts out to the surface to form granite or other igneous rock, the hardest rocks we have.

# THE FASCINATING STUDY OF THE CHEMISTRY OF NATURE

That rock is worn away by the slow file of Time and is washed down into the rivers and so to the sea, to form silica when extracted by diatoms and other microscopic organisms. Such particles are received into the digestive cells of the sponge and form their spicules, their boring tools, their defences, their dwellings, as in the Neptune's Cup, and eventually turn to flint.

Is not the chemistry of Nature inimitable; the study of her works more fascinating than the stories written to fire the minds of adventure-loving boys? If sponges can do such things from this substance that came from a volcano, what can corals do? We shall see presently, but will call by the way on the very converse of the horny sponges, the coral's relatives, those flimsy, transparent discs of life that float in every sea, the jelly-fishes.

These, with the corals and anemones, are called the Coelenterata, and share the common peculiarity of an all-round structure, so to say. That is, they have no "sides," but are circular and symmetrical. Moreover they have no internal divisions

of the body, like the higher animals, but are furnished with a digestive system which is not a closed canal, as we should expect to find, but is practically the entire interior of the body. At first sight they appear the most defenceless of creatures, but they have their stings and poisoned barbs most potent.

# THE DISCS WITH WHICH THE COMB-JELLIES CATCH THEIR PREY

All our rules have their exceptions, and we must hasten to note some here. For the Ctenophora, or comb-jellies, have no stinging cells, but multitudes of tiny adhesive discs which clutch and secure minute prey. Then, another of the exceptions, the lovely Venus's Girdle, is not circular, like the rest, but exists as a broad ribbon of exquisite life, fringed with cilia which bring food within range. Some of this group have taken to creeping along the sea-bed, and so have assumed a drawn-out, two-sided form. All animals are thought to have passed through the Coelenterata stage, and we may guess from the comb-jellies whence the octopus derived his sucker-discs, and, from the crawling species, how two-sided shapes were standardised.

Passing to the *Cnidaria* we have an example of a dazzling contrivance on the part of Nature for distributing her family, in what is called Alternation of Generations. It is not peculiar to this group, but here we may examine the method. Suppose we have a jelly-fish mass which, as with the sponges, comprises many individuals all united into one. If these went on budding and growing, the mass would become inconveniently large. If the component parts all produced eggs, they would overcrowd the sea in their neighbourhood and bring about starvation for themselves and all their kind thereabouts.

#### How the Jelly-fish families are distributed over big areas

Now see what happens. The many-inone are called a stock. Parts of the
stock, charged with eggs, break away,
like the geminules of the sponge, float
off and colonise some new area of water,
where the eggs are produced. Some of
these sink and form new stocks, which will
bud off new attached members. Others
of the eggs, however, will hatch straightway into free-swimming jelly-fish. The
plan is ancient and has been employed in
many forms of life by Nature. In the
jelly-fishes it has succeeded wonderfully.

#### QUEER AND LOWLY CREATURES

The type is represented in all waters, from the shores of Britain, through the Tropics, and away towards the waters of both the Poles. One would expect the warm-water regions to produce the giants, and mighty forms are there, but probably the chill waters of the far north and south have the Titans, for one of our recent Antarctic expeditions hauled up from the water, at the foot of the Great Ice Barrier, a jelly-fish which was 29 inches across the upper part, and weighed over ninety pounds.

# THE FLOATING UMBRELLAS WITH A MASS OF WAVING ARMS

How much such a monster would weigh after its watery contents had escaped one cannot venture to guess, but we have all heard of farmers carting jelly-fish in loads, a ton and more at a time, as manure for their land, only to find, as children find by the shore, that their sea booty resolved itself into watery films.

Jelly-fish life extends into many species and is complicated and fascinating. In general we know that the body, a mass of glassy jelly, enclosed between the upper and lower sides of the bell or umbrella, bears a number of arms or tentacles, and that from these issue the abominable stinging barbs. These can be drawn in and protruded like the action of a glove-finger which is alternately tucked in or pulled out, but when the apparatus is shot forth and touches, its little weapons sting with the rapidity of a nettle, but with infinitely greater virulence.

In the jelly-fish, of which the Siphon-ophora are the highest form, we have the same system of stocks and single individuals as in the former species, but still more remarkably developed. Here, in a single floating mass, we have congregated together a series of individuals united, yet recognisable as many in one.

# THE DIVISION OF LABOUR IN THE JELLY-FISH COLONY

Such a jelly-fish colony is more socialistic than a community of ants or bees; its labours are subdivided yet coordinated as in a mass-production American factory. There are jelly-fish in the united mass which propel the whole colony along, their function being to take in water, contract and squirt it out, and in that way row the living city about. Then there are others which guard the colony from offence, like the huge-jawed soldiers of the warrior ant colonies. In addition

there are the members which produce eggs or buds, and finally those which collect the food, digest it and pass the nutritive result from end to end of the entire body of many individuals in one.

Of the Siphonophora, the Portuguese man-of-war is the culminating height of jelly-fish perfection, a thing of exquisitely radiant colours, whose body is like a luminous inflated sack, six inches in diameter, with a living nursery attached to its underside, and stinging tentacles, several feet long, streaming like a corrosive battery far in the water.

There are free-swimming jelly-fish, in the *Hydromedusae*, which are solitary and must fight and fend for themselves. Extraordinary facts regarding food supply have been discovered concerning these. Not only do they exhibit instinctive genius in catching food with their tentacles; they are known to collect food which falls on the upper side of the bell, securing this supply partly by the rhythmic movements of the bell, and partly by the action of minute cilia.

The united result is that the prey or organic matter is gathered into little heaps, mixed with mucus, brought to the finely fringed edge of the upper side of the bell, then, by means not yet ascertained, conveyed to the underside and so to the tentacles and thence to the slit-like mouth.

# THE TINY ORPHANS WHICH GO TO THE JELLY-FISH FOR PROTECTION

Included in the diet of these jelly-fish it is surprising to find the tiny larvae of oysters, whelks, and the like, eggs of fish, little crustaceans, tiny bristleworms and multitudes of algae. So the jelly-fish is a free feeder, and takes things that might become food for man. On the other hand, he swallows the enemies of our fishes and molluscs, and is a benevolent nursemaid to many kinds of fishes.

Baby herrings, baby codfish, and a multitude of other triendless orphans which eventually come to table in breadcrumbs or batter, look to the jelly-fish for shelter. But why does it not sting them to death as it stings other fish which do not go to it for aid?

Certain crustacea, whose hard coats make them indifferent to its stings, play the brigand to the jelly-fish; they attach themselves to it and actually take the food out of its mouth. That is disastrous to the jelly-fish's prospects of long life.

Now the little fishes which it shelters are the very ones which need crustacea as the main part of their diet. So, when the robber is pillaging the mouth of the jelly-fish, the welcome fish swim up and devour the intruder.

For that service they are entertained without harm by the master of barbs and stings. But let an enemy of those fish pursue them within range of the jellyfish, then out go the stings, and the foe is either stunned and caught, or so severely punished that it is glad to escape with bare life.

# THE QUAINT ANIMAL WHICH IS LIKE A FLOWER IN APPEARANCE

A similar scheme of mutual aid extends to the relations between the sea-anemones on the one hand and several other types of life, crabs, whelks, fishes, even actual vegetation on the other hand. For, in spite of the name, the sea-anemone is not a vegetable, like the plant with which it cooperates. It is a true animal, low down in the scale like the sponge, and with decidedly vegetable suggestions in certain of its features. But the most flower-like of all its attributes is its actual appearance.

Anemone it certainly is not, even in outline. We might liken it to some exquisite daisy, chrysanthemum, or dahlia, perhaps, but not accurately to the delicate wind-flower. No matter, a sea-anemone flourishes as lustily by this name as any other, and it is a thing of rare beauty and wonder to all who have eyes to see and access to its home.

The body, with its leathery covering and strong muscular substance, is always heavily fringed with tentacles about the mouth, and these tentacles are armed with minute thread cells which bear poison, so that the arms not only cling but sting. The strength of a single tentacle may be insignificant, but the drawing power of the entire assembly is astonishing. They cannot pull our finger into the interior of the animal, but the force is noticeable even in the small species which are found round our coasts.

# THE ANEMONE WHICH MADE A

The anemones are sightless, but the possession in some species of brightly coloured, bead-like prominences at the base of the tentacles around the mouth suggests that they are sensitive to light. These organs might, in course of time,

possibly develop into a sort of eyes, though the suggestion is risky considering how ancient a type the anemones form.

Touch and the power to abserb seem the chief assets of the anemone. One has been known to swallow a penny. Another was fed with eleven small crabs in succession. This one was exposed in a rocky pool whence the tide had retreated, and it clung, neatly folded in, looking like a large red jujube.

But it needed only a touch to cause it to thrust out its tentacles and to take in the proffered crab. Again and again it accepted the offering, till it bulged with livestock. Why did not the desperate little crabs eat their way out? The anemone, once it swallows them, is able to paralyse their action and slowly to absorb their fleshy contents.

All the tribe are heavy feeders when the opportunity offers. One swallowed a bivalve as big as a saucer. The meal so distended the anemone that it stretched and divided into two halves, with the result that a second mouth and set of tentacles formed—one set above the prey, the other set below—two anemones in one.

# THE NEW ANEMONES WHICH GROW LIKE BUDS ON A STALK

All the anemones are sedentary, attached by a stout foot muscle to rock or sea vegetation, unless they anchor themselves to a moving animal, or, as happens with several species, burrow into the sand.

Sometimes new anemones bud off from that footstalk, but as a rule eggs are laid within the parent body and hatch there, and the larvae swim out when ready, or are ejected in a jet of water which passes out of the adult's mouth.

Great interest attaches to the feeding and general life habits of the anemones, but if one would preserve his poetic conception of their beauty and charm he had better not attend their dinner-table. No syren, no monster of the sea, could ever have been so frightful to ancient human imagination as an anemone must be to the fishes and crustacea which it draws helpless into its insatiable maw.

Nevertheless, there is nothing lovelier in the seas than the anemone, no richer hues in the rainbow. There is no garden in the world more rich and varied in colour and design than sea deeps where tropical and sub-tropical varieties spread their gorgeous filaments and ravenously prey. It is but a step from an anemone to a coral polyp, though no anemone ever furnishes itself with a hard skeleton. The coral polyps, on the other hand, are the foremost builders in the realm of Nature. Dead, minute shelled animals have formed mountain ranges, but living, the polyps have changed the bed of many a seaway.

They take mineral matter from the sea, and they take it also from the myriads of microscopic animals with limy coverings which form part of their food; and the whole they convert into coral as hard as rock, which, when brought into human service, takes a polish as fine as marble. Having studied the bee with its waxen cells, the spider and caterpillar with their webs, the molluscs with their shells, and the birds with their lime-coated eggs, we are now prepared to contemplete even these massy marvels of coral with reasoned philosophic belief.

The little animals, flower-like in appearance, grow together in countless profusion in their colonies. Instead of thinking wax, like a bee or a wasp, they think this lovely limy coral. That is only a way of putting the matter, of course, for they cannot think at all; they are very lowly organisms, in spite of the marvels they achieve.

# THE ISLANDS MADE BY TINY CREATURES IN THE SEA

They work together night and day, secreting the material and building it into reefs, into islands, into barriers, into crater-like atolls. They have given us hundreds of islands on which men dwell and make their homes of the material that these minute animals have created. They alter the depths of seas, by changing the levels of sea-beds. They nearly cost us the lives of Captain Cook and all his crew, when a piece of coral from the Great Barrier Reef off the east coast of Australia penetrated the hull of his ship, and then, by remaining fast in the hole thus caused, saved him from the wreck which must have resulted had the mass become dislodged before he gained harbour and the chance to careen and repair his ship.

Age after age these great structures rise beneath warm seas. Coral polyps are born and die. They are eaten by fishes which, like sheep on the downs, browse where the polyps thrust out their bodies with waving tentacles to gather food from the water. But their work goes on, century after century, epoch after epoch. Coral polyps are growing at the bottom of

the Red Sea today whose ancestors were at work there when Pharaoh and his host were drowned in its returning waves.

Many illustrious names are associated with the problem of coral structure. Everybody believed the substance to be sea vegetation, that the polyps were the blooms, and that the mineral, covered with a sort of skin, was the trunk of the plant or shrub.

But how were they to account for the rocklike consistency of a living shrub? "Ah," said the wise ones, "the coral is soft and flexible, like plants of the Earth, till it reaches the air, then it instantly hardens into this rock-like substance."

#### THE GREAT BARRIER REEF WHICH

Eventually a French scientist conducted experiments with professional coral fishers. He made them dive and feel at the coral. They came up reporting that the undersea coral was as hard as that out of the sea. He could not, dared not, believe it, so, slipping off his clothes, he, too, dived, groped among the coral, and found the report to be true.

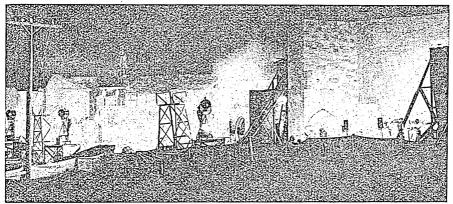
The amount of coral created by these puny animals is beyond human calculation. The animals are in every area, and even in fresh water, though it is in warm seas that they attain their greatest luxuriance. On some coasts they appear merely as scattered groups or mounds of coral rock, but west of the Fiji Islands is an area of coral reef 3000 square miles in extent, and the Great Barrier Reef of Australia attains a length of 1250 miles, all the work of these minute animals.

Engineering so terrific as this naturally spells jeopardy to navigation, and the menace grows from age to age as the unflagging builders toil. But they have fashioned many a sweet sanctuary for ships by their atolls, many a home for man in the midst of blue and sunny seas. On and on, up and up they build.

# THE TIDE-BORNE LIFE WHICH COMES TO THE NEW ISLANDS

Fish tear and rive at the coral, worms tunnel, waves break and crumble the rock, wrench off boulders of it and use these as battering rams to demolish still more. At last a fine detritus is formed to which one day a voyaging coconut comes and takes root, rises into a tree from which new nuts fall and create a grove. Birds, weary of sea flight, arrive and make

The Story of the Things We See About us Every Day



How daylight effects are obtained for photographing moving pictures by night

#### HOW THE KINEMA CAME

When the men of the Stone Age painted pictures of running horses on the walls of their caves they drew the legs of the animals in very queer positions. The attitudes of the horses, indeed, seemed so unnatural that when modern explorers found the pictures they laughed at them, but excused the artists with the remark that we could hardly expect savages who lived thousands of years ago to draw galloping horses properly.

But the man of the Stone Age was accurate after all. Horses do run like that, and it was the kinema that proved the ancient artists to be right, for the instantaneous photographs taken for a film show the galloping horse's legs in exactly the same positions as they are drawn by the Cave Men. Those early artists can indeed call the moving-picture maker of the twentieth century as a witness to their accuracy of observation.

The kinema is undoubtedly one of the most wonderful of the many wonderful inventions of the last twenty or thirty years. It makes a picture live, and by its aid we can reconstruct the past, we can bring the whole world of the present with its varied and magic life into a room, and we can see not only the actions of men, but the very processes of Nature herself in operation.

Unlike the telephone, the gramophone, and many other wonders of the day, the kinema cannot be said to have been invented by any one man. Rather is it the product of the discoveries and inventions of many men, all working toward the same end. The moving picture is, in fact, not so much an invention as an evolution. The inventors of the ordinary photograph were, of course, the pioneers, though even without them we could have had moving pictures of a kind. But such would have been drawings, and might or might not have been true to life according to the skill or otherwise of the artist. It was photography, however, that opened up the vast possibilities which have come, and are still coming, to fruition in the splendid moving picture of today.

It is a matter of great satisfaction that Englishmen should have played the leading part in the development of the kinema. So far back as 1833 an apparatus called the Zoetrope, or wheel of life, was invented or described by an English mathematician, W. G. Horner, which gave to pictures an appearance of vivid movement. It consisted of a hollow cylinder with a number of slots cut round its upper part, and round its lower part inside was arranged a series of drawn pictures showing successive stages in the movements of a galloping

INDUSTRIÈS · HOW THINGS ARE MADE · WHERE THEY COME FROM

horse, a walking man, or some other moving object.

When the cylinder was rotated, and an observer peeped through the slots which came round in rapid succession as though they were one slot, the horse seemed to be galloping, or the man walking. This was due to each picture of the series impressing the eye for only a moment, and the whole set becoming merged into what seemed to be one picture combining the successive positions of the legs and body, with the illusion of motion.

# HOW THE FIRST MOVING PICTURE OF A HORSE WAS TAKEN

The zoetrope was soon improved upon, and was succeeded by a number of later and better appliances with long and difficult names, like praxinoscope; but we must remember that the old zoetrope was really the parent of the modern kinema, the same principle, the illusion of motion, being used in both instruments.

A great advance was made in 1872 when the idea of adapting photography to the zoetrope was first thought of. In that year Edward Muybridge, a native of Kingston-upon-Thames living in San Francisco, conceived a novel way of obtaining a series of snapshot photographs of a galloping horse. He arranged 24 cameras side by side along a track, and on the opposite side of the track he erected a high fence painted white, while across the track at intervals he stretched 24 threads, each of which was connected with a spring holding in position the shutter of a camera. A horse was then set galloping along the track, and, as it passed each thread, it snapped it and released the spring, opening the shutter, and taking a photograph of itself.

# THE MEN WHO GAVE US THE FILM AND THE MOVING PICTURE CAMERA

The result was a series of 24 instantaneous photographs, more or less in silhouette, showing successive movements of a horse galloping. These photographs created quite a sensation, and among those who loudly praised the clever Englishman was Meissonier, the French painter, who was greatly interested in studying the movements and positions of the horse's legs in action.

But before the moving photograph could become a practical proposition the film had to be invented, for without it a thousand cameras would have been needed to take sufficient photographs to show a moving picture for one minute on a screen. Several attempts were made to devise a suitable film, but it was not till 1884 that the first real photographic film was invented by George Eastman of Kodak fame.

The next thing needed was a camera that would take a series of pictures on a film, and this was invented by another Englishman, William Friese-Greene, a native of Bristol, whose claim to be the true inventor of the moving - picture camera was definitely decided in the United States Circuit Court of New York. He used his camera first on November 15, 1889, taking a scene in Hyde Park.

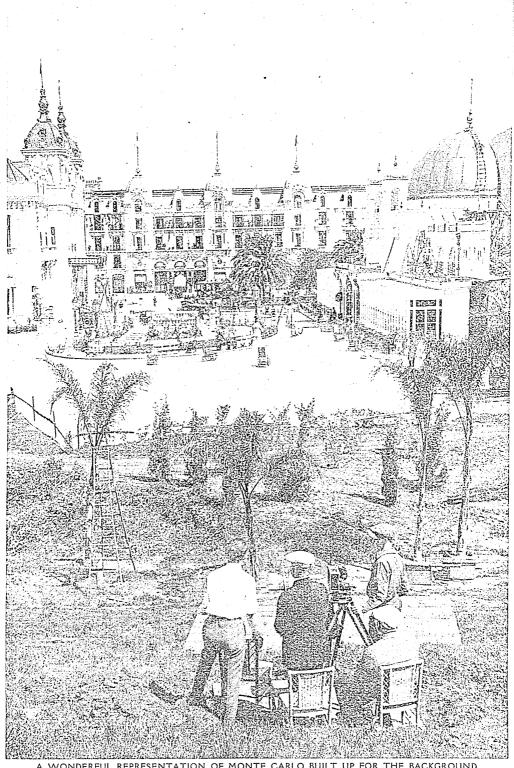
Later, Edison invented the kinetoscope into which we look to see the moving picture, turning a handle to rotate the photographs; and this he patented in 1893, showing it at the World's Fair at Chicago. Projectors came next, but the difficulty of throwing a satisfactory moving picture on the screen was not yet overcome, the pictures always appearing too faint.

# THE IMMENSE MULTITUDE OF PEOPLE WATCHING MOVING PICTURES

At last Robert W. Paul, another Englishman, solved this problem, and one day in February, 1895, about three o'clock in the morning, the policemen on duty near his studio at New Southgate, Middlesex, heard loud shouts, and running to the spot, they went inside and found Paul and his men rejoicing at having successfully thrown a really clear moving picture on a screen for the first time.

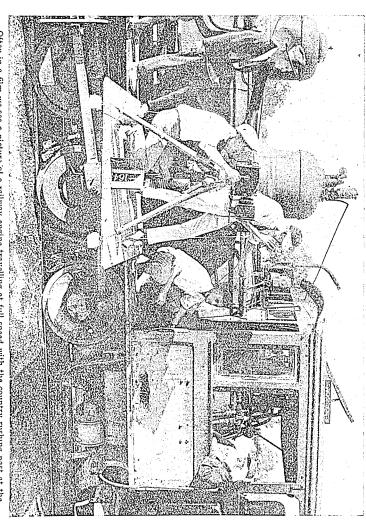
From that time to this the story of the kinema has been one of constant progress and improvement. Among more recent developments has been the successful introduction after long experiment of films in natural colours. Educational films showing such varied subjects as industrial processes and surgical operations have added immensely to the usefulness of the kinema, and it is hoped that such films will eventually drive off the screen much of the rubbish from America which is shown here. The moving-picture industry is now one of the greatest in the world, and from that little group of policemen and workmen in Paul's studio, who saw the first really satisfactory moving photograph on a screen, the number of spectators has increased till, in the United Kingdom alone, every year more than a thousand million seats are occupied by people watching the films. It is a record without parallel.

# PICTURE-STORY OF THE KINEMA



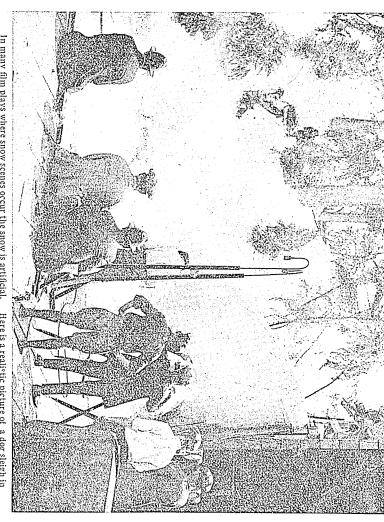
A WONDERFUL REPRESENTATION OF MONTE CARLO BUILT UP FOR THE BACKGROUND OF A FILM. IT WILL BE NOTICED THAT THE BUILDINGS HAVE NO BACKS

6705



back. This shows how such a film is taken, the camera men being on a platform on the forepart of the engine. Often in a film we see a picture of a railway engine travelling at full speed with the country rushing past at the

# HOW SOME OUTDOOR FILMS ARE TAKEN



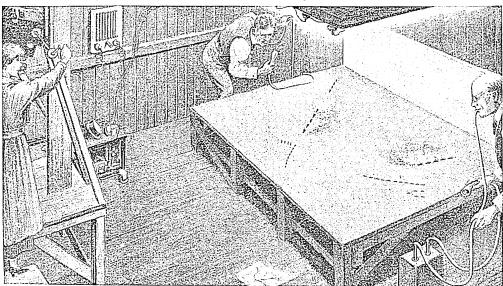
In many film plays where snow scenes occur the snow is artificial.

the Frozen North, but for the snow fifteen tons of salt were used, and for the ice 800 pounds of paraffin wax. Here is a realistic picture of a dog sleigh in

# MAKING A TORNADO FOR THE KINEMA



In many films tornadoes and cyclones have to be represented, and these are made to order in the manner shown in this picture. A'terrific wind is created, as required by revolving an aeroplane-propeller at very high speed.



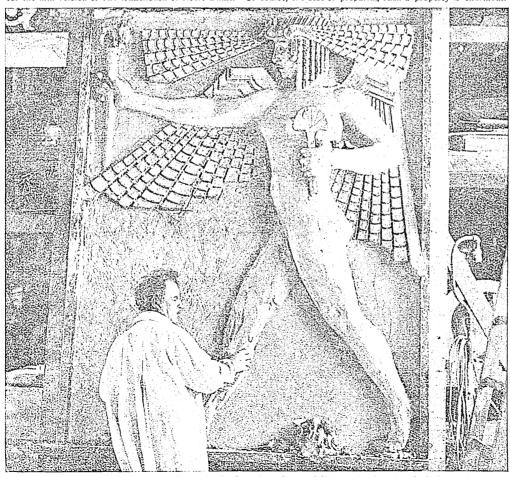
A notable example of the way in which a sea-fight is represented is afforded by the film of the Battle of Juliand. Tiny model boats represented the warships, a tank was the North Sea, and the vessels were operated by bellows.

6708

# THE FILM SCULPTOR AT WORK ON HIS STATUES

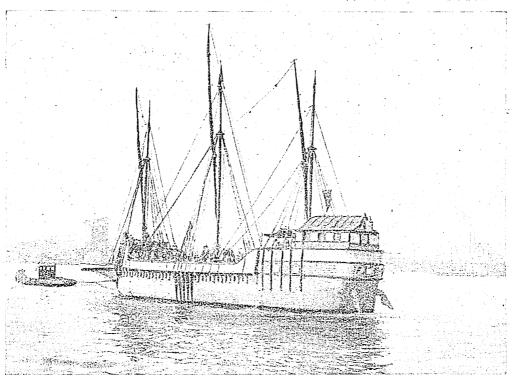


Here is one of the workshops in which were prepared the many statues needed for the façade of Notre Dame, built Of course, the cost of preparing such a property is enormous. for the film version of The Hunchback of Notre Dame.

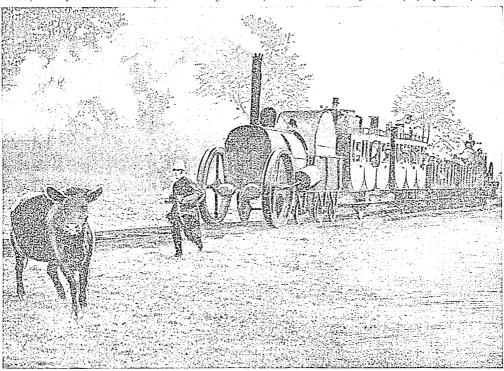


This sculptor is at work on a figure for use in the film of the Queen of Sheba. Much archaeological knowledge is needed by those who prepare films of ancient life in order that architecture and costume may be accurate.

# A REAL OLD SHIP AND A NEW OLD TRAIN

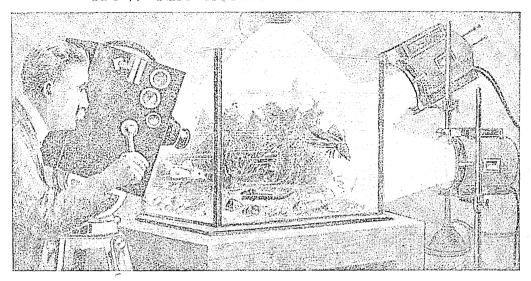


This pirate ship used in a film taken in Los Angeles Harbour, Calitornia, is a real old-time Moorish sailing ship, once used by Barbary corsairs. The film producer is delighted when, as in this case, he can get a real property for his picture.

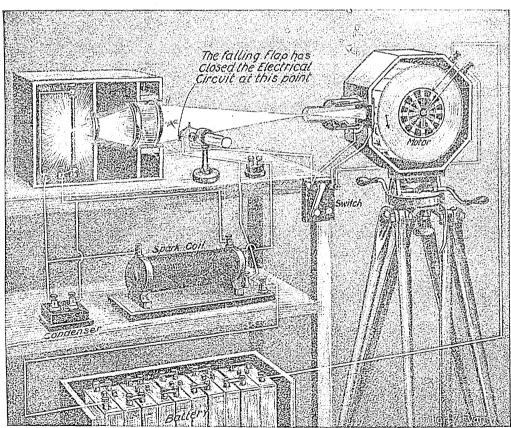


Here is an old-fashioned railway train which had to be made for a scene of the opening of the London and Birmingham Railway, Old-fashioned locomotives of this kind made for the films are generally worked by small gas engines inside.

# HOW AN INSECT FILMS ITSELF

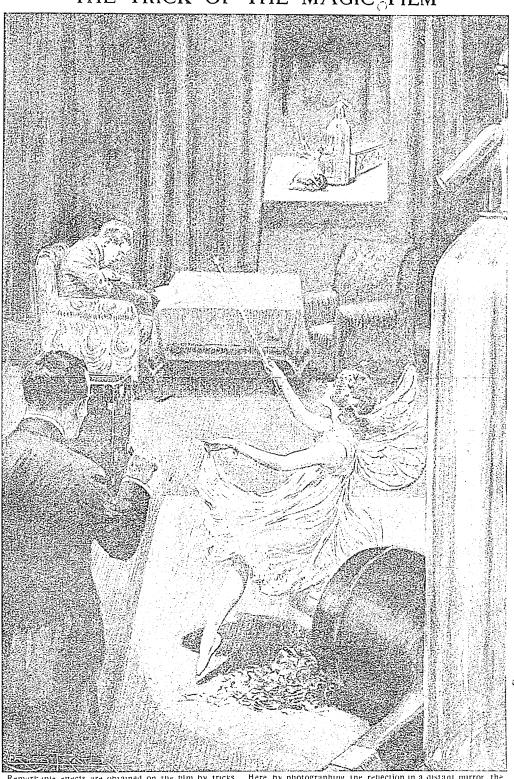


Great skill and patience are needed for the taking of effective natural history films Birds and fishes and insects will not act and move to order, and the operator has often to wait for hours to get an inch or two of film. This illus tration shows how interesting and instructive pictures may be taken of fish and other inmates of an aquarium.



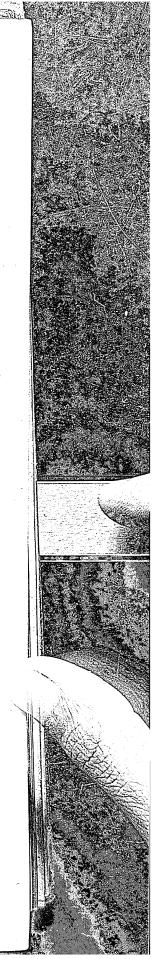
This picture shows how an insect films itself. As it emerges from the tube holding it, the flap of the tube drops and closes the circuit causing the camera shutter to open, the intermittent spark to be fired and the motor to revolve the film, thereby taking the photographs of the flying insect. The exposures are made by a rapid succession of sparks, over a hundred occurring in a second, thus showing every detail in perfection under a powerful light.

# THE TRICK OF THE MAGIC FILM

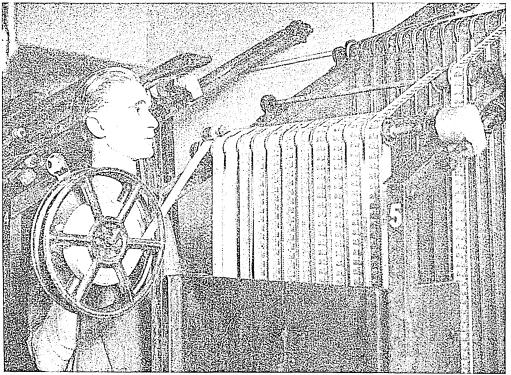


Remarkable enects are obtained on the film by tricks. Here, by photographing the reflection in a distant mirror the woman appears on the table very small, and thus is made a picture of a tairy coming out of the sleeper's pipe.

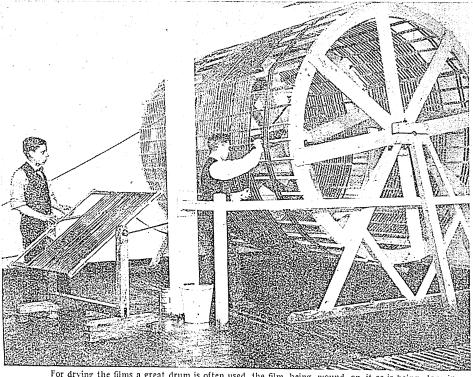
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# DEVELOPING AND DRYING THE FILMS

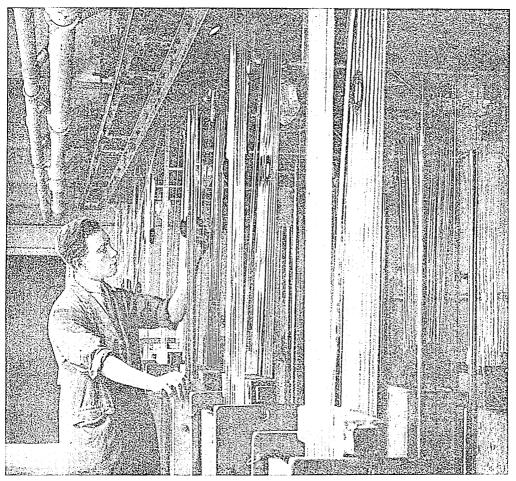


Hundreds of millions of feet of film have to be developed every year, and for this operation elaborate and efficient machines are used like the one shown here. The film is being fed into the machine and emerges completely developed.

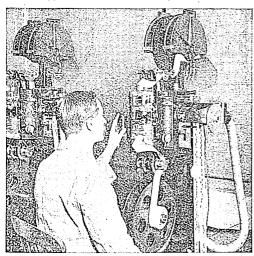


For drying the films a great drum is often used, the film being wound on it as is being done in this picture, and then when it is perfectly dry being wound off again and rolled up on reels.

# THE FILMS ARE READY FOR THE SCREEN



Many films are stained with colour to give moonlight and other effects, and in this picture we see the apparatus which automatically washes and stains 4000 teet, or nearly a mile, of film at one operation.

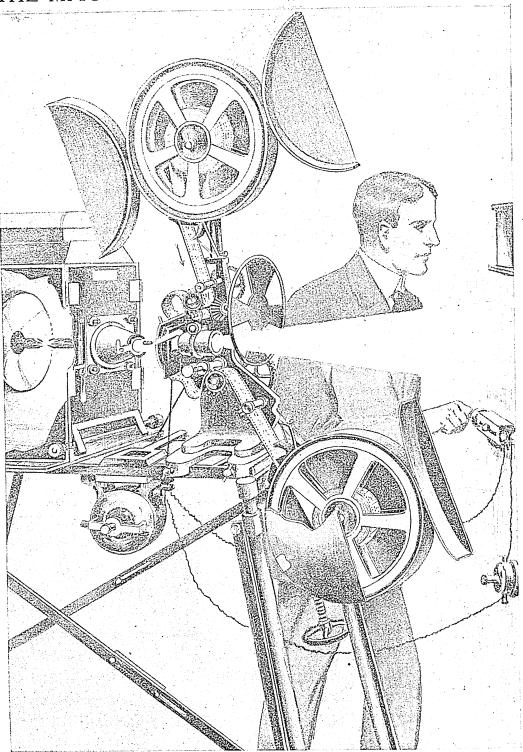


The films used for projecting on the screen are of course positives, and these are printed from the negative film, the punched chart on the right regulating the light.



The last operation in preparing films for the screen is to measure off the right number of feet, and to pack them in tins ready for despatch to the picture theatres.

# THE MACHINE THAT MAKES A PICTURE LIVE



This is the machine that throws the moving pictures on the screen. An intensely bright light is given by an electric lamp, and this shines through the film and makes the picture appear. The movement we see is obtained by passing successive pictures so rapidly before our eyes that we appear to see the action in one picture. The passing of the film is operated by a switch, and as it unwinds from one spool it is wound on another.

# Plain Answers to the Questions of the Children of the World

How Far We Can See When We Stand at Various Heights

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$ \begin{array}{c cccc} 7 & \cdots & 3\frac{1}{2} \\ 8 & \cdots & 3\frac{3}{4} \\ 9 & \cdots & 4 \\ 10 & \cdots & 4\frac{1}{4} \\ 12 & \cdots & 4\frac{1}{2} \end{array} $	358 408½ 459 509½ 5510	9012½ 9513 10013½ 11014 12014½	35024 40025 45028 50029 55031	200059 \\ 300072 \\ 400083 \\ 500093 \\ 528096

The first figure is the height in teet, up to a mile; the second is the rough distance seen in miles (not exact to small fractions).

#### HOW FAR CAN WE SEE?

Y/HEN we say that our eyes see, all we really mean is that light has entered them, and has affected them. If that happens, we see. It does not matter whether the light has been produced by a match that someone has held in front of our eve, or whether the light has come from a star so distant that its light took ten thousand years to reach us. In either case, if light enters our eye in sufficient quantity to affect it, we see. The answer to our question, therefore, is that our eves can see to any distance from which light can reach them. The question whether the light has travelled billions and billions of miles, or only half an inch, makes not the slightest difference to our eyes.

It is quite a distinct question at what distance our eyes can distinguish the details of a particular thing. This depends on many things, but it can be reckoned to some extent, and it is very important to do this for the case of different telescopes. We know that, if there were any building on the Moon as large as St. Paul's, it could be recognised in our best telescopes.

Standing at any given point, we can usually see what is called the horizon, from the Greek word *horos*, which means a boundary, and in this case means the boundary between the Earth and the sky. We understand, of course, that the line we see on the horizon is not really the

boundary between Earth and sky, but merely the boundary between them as they appear to our eyes.

As we stand by the seashore, the sky and the sea seem to meet. We can see a line which seems to be the end of the sea and the bottom of the sky. That is the horizon. Similarly, if we stand on a plain of land we can, if there are no trees or houses in the way, see where the end of the land seems to touch the bottom rim of the dome we call the sky. That also is the horizon.

Its distance depends on how high our eyes are from the level of the sea if we are looking across the sea, or from the level of the land across which we are looking if we are looking over a plain. A boy standing on the shore looks out on the sea from a distance about four feet higher than the level of the sea-the height of his eyes from sea-level. He can see just a little more than two and a half miles in front of him, and his horizon is just this distance away. The eyes of a boy on the edge of the cliff, on the other hand, are 100 feet above sea-level, and he can see about 131 miles off, and that is where the horizon is. Again, the top of a lighthouse is 150 feet above sea-level, and if a boy looks out on the sea from this point he would see about 161 miles, and his horizon would be 164 miles away.

FIRE · WIND · WATER · LIFE · MIND · SLEEP · HOW · WHY · WHERE

The scientific explanation of all this would be that "range of vision is determined by the altitude of the observer." In simple language, this means that the higher up we are the farther we can see. That is because our world is a globe. Perhaps we can understand better how this is if we stand in front of a row of houses forming a bulging crescent. Stand close to one of the houses, and turn your head first to the right, and then to the left. You cannot see much of the row of houses, perhaps only a little bit of the house on each side of the one of which you stand in front. Step back into the middle of the road, and look again. Now you can see a good many more of the houses, but still not all if the row is long. Then cross to the far side of the road, and many more will be found to have come within range.

To look for the horizon is much the same thing. The Earth is round, and the farther we are above the ground along which we are looking, the farther we can see. The table on page 6717 shows how far anyone can see at various distances from the Earth's surface. At one mile high we can see 96 miles. The figures are generally correct, but not quite exact, as the table is drawn up for simplicity, and so avoids small fractions.

# Why Does it Rain so Much in Scotland?

This is one of those difficult questions about the weather which no one can fully answer. One of the great causes of rain is the existence of much water for the Sun to draw up, and so any island is far more rainy than the interior of a continent, such as the Sahara Desert. That applies to the whole of the British Isles. But the rain that falls in our islands is principally brought from the greatest expanse of water near them, which is the Atlantic Ocean So it is chiefly the "warm, wet western wind" that brings the rain. It deposits the rain most where it is most cooled, and as Scotland is farther north than England it is colder; and so its climate condenses more rain than the climate of England does. Scotland also has a very broken west coast, so that the water of the sea comes far up into the land, as in the case of the Clyde, round which there is more rain than anywhere else in Scotland. The west coast of Ireland is very rainy, too, and Ireland catches part of the rain which would otherwise fall on England. Scotland, again, is

very hilly and mountainous, and air is cooled in rising over hills, and so deposits much of its moisture as rain. Of course, the east coast of Scotland is far drier than the west, for when the west wind reaches it, it has already spent most of its moisture farther west.

# Why is it Easier to Swim in Salt Water Than in Fresh?

The answer depends wholly on the heaviness of our bodies as compared with the heaviness of the water. Our bodies are more than three-fourths water, but most of the rest is heavier than water, The fat of our bodies is lighter than water, and so helps us to float. Now, fresh water is less heavy than salt water, and so our bodies, though only a little heavier than it, tend to sink in it. Ordinary sea water is heavier than fresh water, because it contains a lot of salts melted in it, just as the water of our own bodies does; so we find it easier to float and swim in sea water. But in some parts of the world there is water that is much salter than even sea water; this is the case, for instance, in the Dead Sea, and we have all heard of the Great Salt Lake in America. There is so much salt in the water of the Dead Sea that it is actually heavier, on the whole, than our bodies are, and you cannot sink in the Dead Sea! On the other hand, there are some liquids much lighter than water, and if a man were to fall into a lake of one of them he could not swim at all, however good a swimmer he was, for his body would sink like a stone.

#### Who was Empedocles?

In the fifth century B.C. Agrigentum, now called Girgenti, was one of the largest and most flourishing Greek cities in Sicily, and the fame of its great philosopher, Empedocles, added much to its glory. Empedocles, who lived from about 490 to 430 B.C., was also a poet and statesman, and his wealth, eloquence, and wisdom gave him immense influence in his native city, where he supported the democratic party. In his teachings he followed Pythagoras and Parmenides, but he claimed also to have magical powers, and the gifts of prophecy and healing. The people came to regard him as an almost superhuman being, and all manner of legends were told of him. He is said to have thrown himself into the crater of Etna in order that his sudden disappearance might induce the people to think him a god.

#### Why Does Water Freeze?

This sounds a simple question. but no one can answer it yet. We do not know why taking heat out of water should turn it from the liquid into the solid state. It is believed, however, that we are wrong in supposing that there is a perfectly sharp line between the liquid and the solid state of water or of anything else. It is probable that water turns into ice or ice into water through unbroken stages; only in most cases these happen so quickly that we have not time to notice them.

If we are ever to learn why water freezes we must certainly discover all we can about the nature of ice, and it is not difficult to find, in the first place, that all ice is made up of crystals. So we must understand crystals, and the reason why so many kinds of matter, when solid, form themselves in crystals. This is a most difficult subject to study, but the laws of crystals are being very slowly worked out, and when that is done we shall perhaps be able to say why it is that water freezes when it is cooled.

# How Can a Bird Fly Though it is Heavier Than Air?

People who spend their lives in destroving the lives of other creatures know that, when a bird is shot, it falls; in other words, a dead bird obeys the force of gravitation exactly as a hailstone, or a raindrop, or a meteorite must do. The force of gravitation is always acting, even on the living bird. It is therefore plain that some force is produced which acts against gravitation, balances it when the bird maintains its level in the air, or more than balances it when the bird rises in the air. This force is produced by the life of the bird. It can be produced in other things that are not alive, as in an aeroplane that we play with. In any case, there is produced a force which acts in the opposite direction to the force of gravitation, and is, for the time being, superior to it. In the case of the bird the force is produced by burning the sugar in its muscles; in the case of the aeroplane it is produced by burning petrol in the engine. Foolish people sometimes speak as if these were cases of defying one of Nature's laws, but they are nothing of the Gravitation goes on acting on the bird whether the bird rises or falls; but when the bird rises into the air a greater force is being successfully opposed to the force of gravitation.

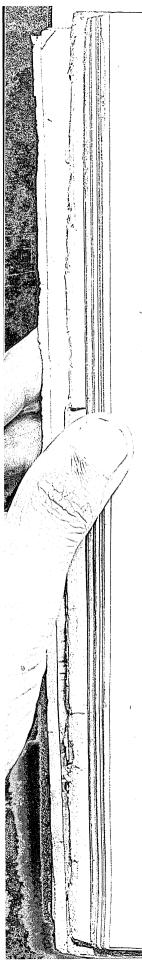
#### Can Chemistry Build Up Life?

No; chemistry certainly cannot build up living matter. But we ought to know how far chemistry can go in this direction. It was long believed that none of the things made by life, such as sugar or alcohol, could possibly be made in any other way but nearly a hundred years ago a compound called urea, which is one of those made inside our bodies, was made by a chemist outside his body; and now chemistry can build up thousands of compounds which are made by living things; and can build them up from their separate elements. This teaches us that chemistry inside living things cannot be so very different from chemistry outside them.

No doubt chemists will some day be able to make all the compounds that compose living matter, or protoplasm, and then call the mixture protoplasm; but it will be only dead protoplasm, we may be sure. Living protoplasm is far more than a mixture of proteids and sugar and salts and water. It has an architecture, and is as much more than a mixture of these things as a cathedral is more than a heap of bricks. The bricks need a builder to make them into a cathedral, and the compounds that compose living matter need a builder to make them into living protoplasm. Otherwise it will be only protoplasm, without the property which all living protoplasm has, and which is the power of growth.

#### Why, from a Train, do the Telegraph Wires Seem to Go Up and Down?

The telegraph wires stretching from pole to pole do not hang perfectly straight even when tightly drawn, but sag in the middle, as a tow-rope stretched from tug to ship will do. They are so nearly horizontal, nevertheless, that the eye of anyone standing still and looking at them from a distance cannot readily detect the looping effect. But when the eye is taken very quickly along by the side of the wire the falling away from the horizontal straightness is detected and exaggerated, so that the apparent up-and-down motion of the wire is optically increased in such a way that it can almost be called an optical illusion, though actually it is founded on In the same sense, if not quite the same way, raindrops falling straight down seem, when the eye looks at them from a moving train, to be stanting towards the onlooker. That is also an optical illusion arising from the train's motion.



# WHAT DO THE WORDS ON A WEATHER MAP MEAN?

There are many strange-looking words on a weather map, and if we are to understand the weather report we must know their meanings.

Perhaps the most familiar are the words beginning with iso. This prefix means equal, and the words are used of certain irregular curved lines appearing on the map. Some of these are called isobars, and join up places of equal barometric pressure, that is to say, places where the reading of the barometer is the same. Isotherms are the lines joining places of the same temperature, the word meaning equal heat. Isohels are lines showing equal duration of sunshine, hels being from the Greek word helios, meaning the Sun. Isohyets are lines showing equal amounts of rain, hyets being from huetos, meaning rain. Isodynamics, a word meaning equal power or force, is used in two senses. It may mean lines connecting places where the intensity of the Earth's magnetism is equal, or lines joining places where the winds are of a specified force.

A cyclone in a weather chart does not mean a raging tornado; it is simply the name given to a region of low barometric pressure, that is, a region where the pressure of the air is less than that round about. The result is that air from the surrounding regions of high pressure pours in and so there is a movement of the atmosphere in which the wind blows spirally round and in toward a centre. This movement may be gentle or rapid, and general or local. When it is gentle it is quite as truly a cyclone as when it is dangerously rapid. A cyclone in this sense is also called a depression (or a low).

An anti-cyclone is a region in which the barometric pressure is high, or greater than that of surrounding districts; and it is generally shown on a weather chart by roughly circular or oval curves representing the isobars. The wind blows spirally outwards, the region of highest pressure being the central region of the anti-cyclone. The word anti-cyclone, of course, means the opposite of a cyclone, and sometimes the word high is used instead of anti-cyclone.

A V-shaped depression is the expression used to describe isobars having the shape of the letter V, which enclose an area of low pressure. The point of the V is always to the south or the east. A barogram is the continuous record of atmospheric pressure made by a barograph, or a self-

recording barometer. In the same way an anemogram is the record of an anemograph, an instrument recording the speed or force of the wind, the Greek word anemos meaning the wind. Katabatic (made up of two Greek words meaning going down) is a word used in weather reports to describe the downward motion of the air. A local cold wind is called katabatic when it is caused by cold air descending from high ground by gravitation.

Veering is the changing of the wind in the direction of the motion of the hands of a watch; the opposite is called backing.

Aerology is a word which has come into use in recent times to indicate that part of meteorology which is concerned with the study of the upper air, a study carried on by means of small free balloons filled with hydrogen gas. They are released, and by following their progress with the help of a specially designed theodolite, knowledge is gained of the wind currents at great heights.

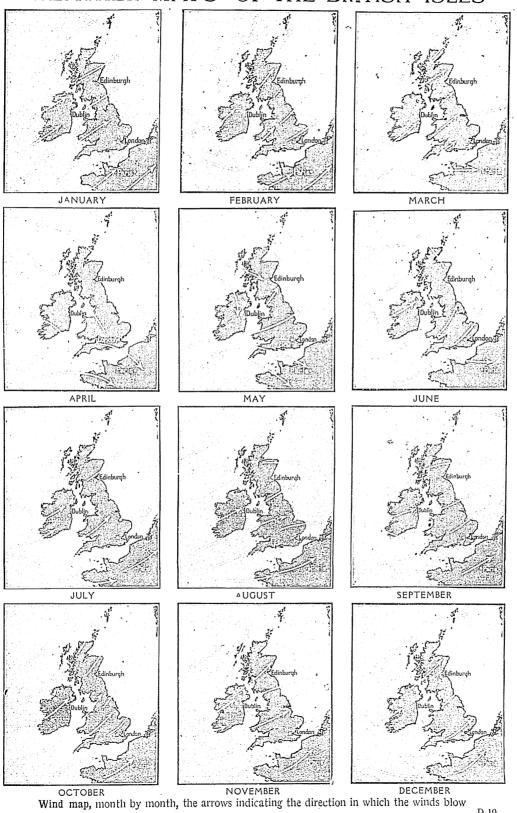
Humidity, a familiar word for dampness, is used in meteorology to describe the amount of water vapour in a measured volume of air. The term Saturation, when applied to the air, means that the air contains as vapour all the moisture it can possibly hold at that temperature.

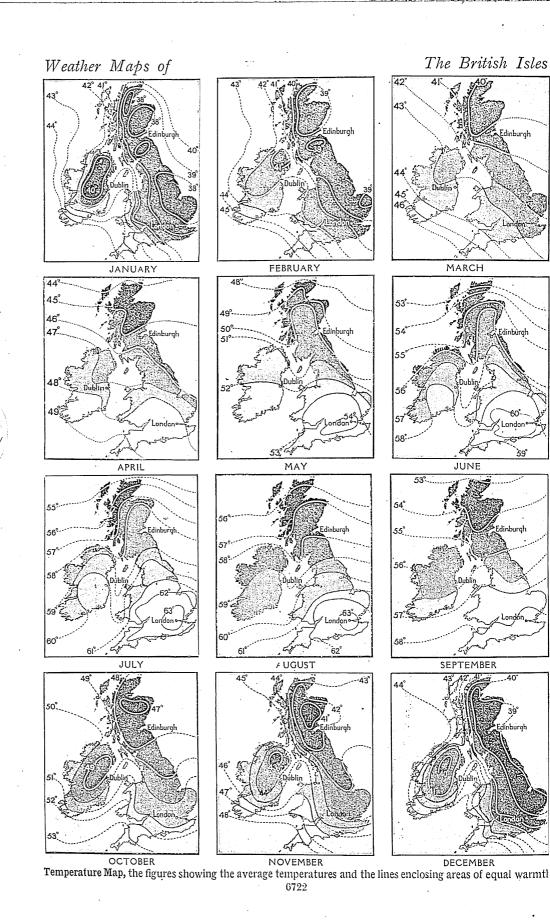
Phenology is a term used to describe the study of the natural changes taking place from season to season, and it includes all natural phenomena, such as seed-times, harvests, flowering, ripening, migration, and so on; but in practice it is often limited to the times on which certain trees and plants come into leaf and flower each year, and to the dates of the first and last appearance of birds and insects. The Royal Meteorological Society issues a Phenological Report every year. The word is curious; it is really an abbreviation of phenomenology, meaning a discourse on phenomena.

Insolation is a word used to describe the solar radiation received by the Earth and other planets. A pentad (Greek for five) is a period of five days. Five-day averages are used in meteorology because five divides into 365, the number of days in our year.

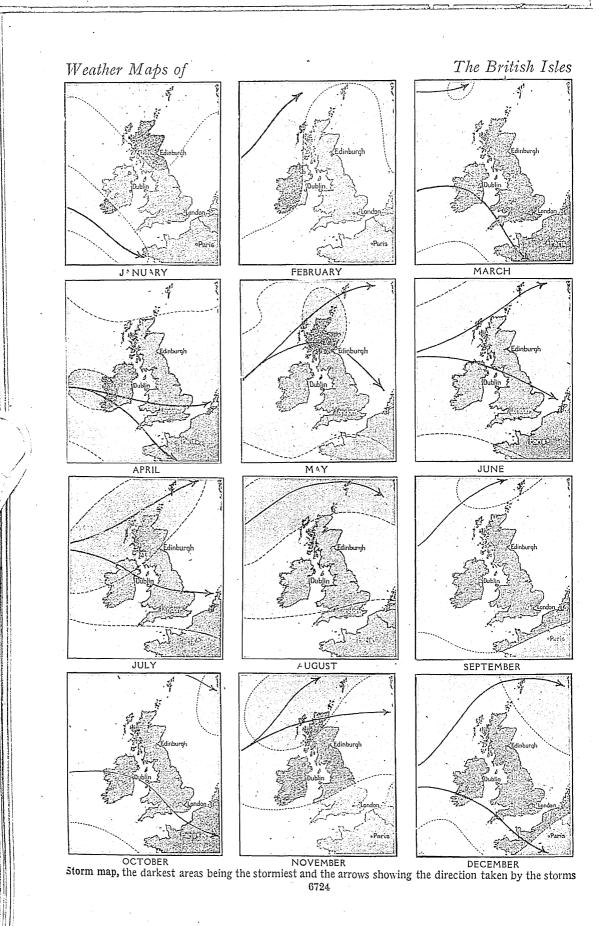
Serein is fine rain falling from an apparently clear sky; a line-squall is a squall of wind accompanied by rain or hail, associated with a sudden drop of temperature and the passing of a long line of dark cloud.

# WEATHER MAPS OF THE BRITISH ISLES









# is the Stuff in Earth and Air and Sea Always Changing Places?

The answer to this is certainly Yes. There is a ceaseless circulation going on between the surface of the land and the water, and the bottom layers of the ocean of air which covers them both. Wherever water is, for instance, it is often being sucked up in the form of a gas into the air, of which it then forms part; while, on the other hand, water vapour from the air often passes from it to the Earth—as, for instance, in the form of dew. Then the gases of the air, especially oxygen and carbon dioxide, are ceaselessly passing between it and the bodies of all the living creatures on the Earth; and from moment to moment, various gases are either leaving the air to be dissolved in the ocean, or are leaving the ocean to join the air.

# Why is Geneva the International City?

It is not a particularly big city, nor a wealthy one, nor vastly important in the world's affairs. It cannot be called particularly central. Why, then, is Geneva international, and why was it given the honour of becoming the home of the

League of Nations?

From earliest days it loved freedom, and its citizens never submitted to becoming the vassals of feudal lords; but for many centuries it had no importance. The change came suddenly and swiftly. The Reformation, spreading over northern and central Europe, came to Geneva and, as in many other places, it came with violence. Calvin, one of the great men of history, was the leader of it. He was a terribly stern leader. He set himself to mend the manners and morals of the people as well as to reform their faith. He drew up a set of rules, stricter than in any school, and anyone who broke them was brought before a solemn council of pastors and churchwardens and punished with great severity. Those who sang gay songs, or danced, or dressed up, were put in prison for three days on bread and water; those who forgot to say grace before and after meals were fined forty shillings; no one might wear gold or silver chains, embroidered clothes or ornaments of any kind, nor might they " play or run idly about the streets during the time of Sermons on Sundays."

In reforming their faith he was still more strict and, following the approved method of the time, his actions were cruel indeed. He scourged the townsfolk, he burned the heretics, but he did what he intended to do. He transformed Geneva from a little unimportant town, of no particular interest to anybody, into the great centre of Protestantism. He did a good thing in a bad way.

It was the beginning of the city's international fame. People from all lands flocked to it. From England and Scotland came those whom Queen Mary would not allow to live in peace. From France and Italy came distinguished poets and preachers, attracted by its reputation of learning. John Knox, who spent several years there, described it as "the most perfect school of Christ that ever was in the Earth since the days of the Apostles." The massacres of St. Bartholomew's Day sent refugees flying in terror from the French towns, and Geneva opened her gates to them, her purse, and her heart.

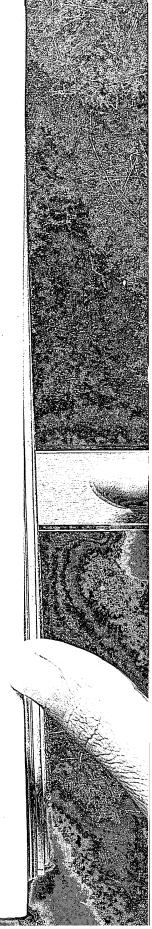
Whenever there were riots and revolutions anywhere, Geneva was the city of refuge to which the persecuted fled. Its population today is only half Genevan;

the other half are foreigners.

No other city has such a history of open-hearted hospitality. Its spirit is truly international.

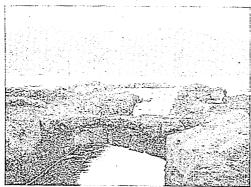
#### What is the Acropolis?

Acropolis was the name given to the highest part of cities in ancient Greece, the part surrounded with fortifications, sheltering temples, statues of gods, and all that was precious to the people. Most of the towns of Greece, of Asia Minor, of ancient Italy, had their Acropolis, and important ruins remain for our admiration. The most famous, the richest in buildings, and also the best preserved, is at Athens. It covers the top of a hill 900 feet long and 450 feet wide, spread with temples, masterpieces of the celebrated artists of the great time of Pericles. There was the Parthenon, erected to Minerva, patron goddess of Athens; the Erechtheum, with its beautiful Porch of the Caryatides; the Propylaea, a monumental vestibule of columns leading to all the shrines. No other place in ancient Greece had such sacred and glorious memories. The Acropolis was almost entirely spared until the seventeenth century, but in 1656 the explosion of a Turkish powder-store destroyed a part of it. Most of it is now in ruin, destroyed by war, and neglected by the Greeks themselves.



# Does a River Ever Flow from the Sea into the Land?

Now and again we find such queer things happening, and at Argostoli, the pleasant capital of Cephalonia, one of the Ionian islands, there is a phenomenon which practically amounts to this which this question suggests. On the west side of the harbour is a stream of sea water which flows at two miles an hour for about 150 feet inland, and then disappears amid clefts and fissures in the Where the water goes limestone rock. to is a mystery, but the local inhabitants say it goes far down to the heated rocks and comes out as steam from Vesuvius and Etna. Others think it is dried up by the internal heat of the Earth. It is a curious phenomenon, unlike anything else in the world, and probably the true explanation of the water's disappearance will someday be forthcoming. The stream is a regularly flowing river of salt water, and was for years used to work two mills known as the Sea Mills, but unfortunately the mills have fallen into decay. The



SEA WATER RUNNING INLAND AT ARGOSTOLI river goes on flowing from the sea into the land, however. The channel shown in the photograph is an artificial one cut many years ago.

#### Who was Lohengrin?

Lohengrin, also called the "Knight of the Swan," is the hero of an old German poem of unknown authorship, borrowed from the romances of the Round Table. Lohengrin, Parsifal's son, having discovered the Holy Grail in India, was one of the knights entrusted with its keeping. Sent from King Arthur, in an aerial chariot drawn by a swan, Lohengrin set off to Mayence in order to assist Elsa, the duke of Brabant's daughter, against her enemy Tetramund. Lohengrin vanquished Tet-

ramind, set Elsa free, and married her, but the severe law ruling the Holy Grail knights forbade their ever revealing their names and origins. Elsa, amazed at her husband's valour against Hungarians and Saracens, begged him again and again to let her know something of his past. Lohengrin refused at first, but he yielded at last and told the Princess who he was. Alas! on the very instant, the famous swan reappeared before the hero, who had to start back to India in his aerial chariot while Elsa was dying with grief. The Lohengrin legend was used by Richard Wagner in one of his finest operas.

#### What was the Code Napoleon?

Before the Revolution in 1789 there was no consistent law system in France. Each province had laws to itself, and the result was great confusion. Napoleon had been struck by this involved state of things before he was Emperor, and he thought much of establishing one law throughout France. When on the throne he proceeded with his plans, and, appealing to the most famous jurists of his time, he had a scheme prepared. Under the Emperor's direction, the Council of the State undertook the task of collation, and a civil code of laws was published ruling the private relations between all French citizens and their obligations towards society.

Not only in France, but in many other nations, this Code of Laws is now in use, and it brings to Napoleon more true honour than any other of his deeds.

# Why did the Egyptians Worship Crocodiles?

The reason why crocodiles were an object of veneration to the Egyptians is rather obscure. Some people pretend that it was a token of gratitude to crocodiles because their ferocity preserved the Egyptians against plunderers, who dare not cross the Nile for fear of being devoured. Others think the Egyptians had noticed the relation of the reappearance of crocodiles to the recurring floods of the Nile, which are a chief cause of the wealth of The superstitious natives the country. put down to the crocodiles the merit of this natural phenomenon. On the other hand, scholars have pointed out that crocodiles figured on Egyptian monuments were not the cruel species we know, but small, gentle animals of the same family, which could easily be tamed, and lived in the gardens, commonly mixing with people, who fed them by hand.

# What is the Longest Animal that Has Ever Lived?

So far as we know this must have been one of the giant dinosaurs of the Jurassic Age, the Diplodocus Carnegii, the remains of which were excavated in Wyoming, U.S.A., and are now in the Carnegie Institute at Pittsburg. A picture of this appears on page 453. The biggest whales ever known—right whales and sperm whales—have seldom measured more than sixty feet, though in these days they never attain such lengths. But the Diplodocus found in Wyoming must have measured over eighty feet from head to tail.

It was a queer creature, for it had a very small head and a short body, with an enormously long neck and tail. neck was twenty feet, or a quarter of the length of the animal, and it was carried so high that a man could have easily walked under it without bending his head. The body, though short in comparison with the total length of the animal, was bigger than the body of the biggest elephant living today, and the back was about fourteen feet from the ground. The small head was furnished with very slender teeth, and there is no doubt Diplodocus was a vegetable feeder. Probably it was an aquatic creature, living on seaweed.

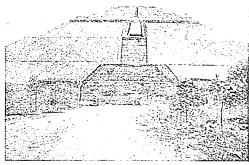
The name Diplodocus is made up of two Greek words, diplos, meaning double, and dokos, a beam, so that the name means double-beam, a reference to the bones covering and protecting the bloodvessels on the lower face of the tail which consist of two separate bars each, slung in the middle, an arrangement unknown in any other animal at the time the dinosaur was found. It was named after Mr. Andrew Carnegie, whose generous gifts enabled the excavations to be made and the remains to be preserved. Mr. Carnegie presented a complete reconstruction of the skeleton of the Diplodocus to the British Natural History Museum at Kensington. The Diplodocus was unprotected by armour and walked on all fours, its feet being like a lizard's.

#### Who Built the Pyramids of Mexico?

About 30 miles from Mexico City, near a village called San Juan Teotihuacan, are two remarkable ancient pyramids, the origin of which is still almost a complete mystery. The larger of the two, which stands over 200 feet high, and measures over 700 feet square at the base, is called the Pyramid of the Sun. About half a

mile away is a much smaller one, called the Pyramid of the Moon. Instead of being pointed at the summit, both these pyramids end in curious oblong terraces, and it is believed that a magnificent temple once stood on the top of the Pyramid of the Sun. Though only about half as high as the Great Pyramid of Egypt, this pyramid is said almost to equal it in volume.

Archaeologists estimate that the Mexican pyramids were built in the sixth century



THE PYRAMID OF THE SUN

B.C., or even earlier, and some say they were the work of the Tlachichiques, a highly cultured ancient people who have left mighty monuments of their civilisation in many parts of Mexico. But who these Tlachichiques were, and whence they came, is a riddle no one has yet succeeded in solving. Mexico is full of mysterious ruins, and near the Pyramid of the Sun thousands of little terracotta heads have been found in what appear to be a grave-yard. No two are quite alike; some resemble Egyptian types and some Mongolian. They are supposed to be effigies of dead priests and kings.

# Why can we Sleep more Quickly in the Dark Than in the Light?

Everything in the world lets more or less light through it if it is thin enough. Our eyelids must be thin because we have to hold them up when we see, and if they were thick they would be so heavy that it would be hard work to keep our eyes Thus, being so thin, our eyelids are very far from being opaque. If they were as opaque as the black cloths a photographer uses we should go to sleep quite as easily in the light as in the dark, for directly we shut our eyes we should practically be in the dark. But our eyelids let a good deal of light through, as we can tell at once if we turn to the window with our eyes shut.

#### What is the Kremlin?

The Kremlin is the central part of Moscow, contains the principal buildings, covers a plateau of 100 acres about 130 feet above the River Moskva, and is enclosed by a high stone wall 2430 yards long with 19 towers. It is a place of barbaric splendour and great historic interest.

Among the buildings in the Kremlin are the old palace of the Tsars; two cathedrals, one founded in 1326 and rebuilt in 1472; the immense Palace of Arms, housing under the Empire the Senate and the Treasury as well as the arsenal; and the celebrated campanile of Ivan Veliki, 271 feet high, with a gilded dome at the top. Close by on the ground is the largest bell in the world, 19 feet high, 65 feet round, and weighing nearly 200 tons. It was broken during a factory fire soon after it was cast, and it has never been hung.

# Why do They Photograph a Man's Finger-Print?

We often see in the newspapers that the police have taken a photograph of fingerprints left by a burglar on a window-pane or a piece of furniture. The reason for this is that the police hope to catch the burglar by means of this finger-print. If we look at our hand closely we shall see that the skin is not smooth like glass, but is in little ridges, and it is these ridges of the skin that have come to the aid of justice. The incredible truth about the tip of our finger is that the pattern of the ridges never changes while we live, and this pattern is different from the pattern on any other finger in the world. No two finger-prints have ever been found alike in all the millions that have been examined. Those who study finger-tips tell us that there are four main types, which they name according to the loops, arches, and other patterns of the ridges, but no two have yet been found the same. The pattern can be destroyed, but it can never be changed.

We see, therefore, that if we take a print of a man's finger-tip we have a certain means of identifying him, and the police take the finger-prints of all the criminals who fall into their hands, and file them away according to a certain organised system, so that when the impression of a finger-print is found anywhere they can turn up the records and see whose it is.

As far back as 1858 Sir William Herschel, a distinguished Indian Civil servant, became interested in this idea, and fought

hard to introduce the system into a British Court of Justice. But the actual public origin of the method was a letter sent to Nature in 1880 by Dr. Henry Faulds, an Englishman, who shares with Sir William Herschel the credit for devising one of the most valuable instruments of justice known to man. Scotland Yard has now about half a million finger-prints filed away, and the Indian police have a million. A description of any one of these can be sent by telegraph.

Some day the finger-tip impression of every child will probably be taken at its birth as a means of identification. Mark Twain once wrote a clever novel showing how valuable such a universal system would be in settling cases of disputed identity, but he can hardly have believed that the system would actually one day be seriously proposed. If it is ever done, as we hope it will be, a civilised country will have an absolute means of identity for every one of its citizens.

# Why is a Staff Sometimes Given to an Engine Driver?

There are many sections of railway where both up and down trains use the same set of rails, and a very simple system of avoiding collisions is adopted, without relying on the ordinary signals.

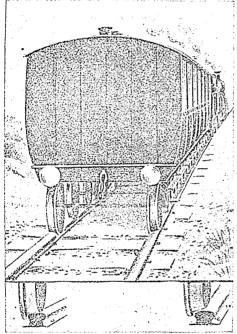
Before an engine-driver may take his train along a single line he must have in his possession a visible sign of his authority to enter that section of line, and so a staff with a loop at the end is handed to him. When he reaches the other end of the single line the staff is given up and passed on to another driver, who is waiting to take another train back over the same line. Until this staff is actually in the possession of the driver he must not enter the single line section.

It sometimes happens that two or more trains are to proceed in the same direction before another train comes the opposite way. In this case the staff is shown to the driver of the first train and a ticket or disc is handed to him before he enters the single line section. This ticket is given up at the other end of the single line, and the official there knows that another train is to follow because the staff has not been produced. When the last train is about to enter the section the staff is given to the driver, and the official at the other end, on receiving the staff from the driver, knows that the line is clear.

# Why Does a Train not Run off the Lines when Rounding Curves?

This is a very wise question, because it assumes the truth of Newton's first law of motion. That law says that a moving thing tends to go on moving in the same direction, and, indeed, must do so, unless something alters it. It follows from this law that the train going round a curve must run off the lines unless some forces are brought to bear on it that will tend to alter its direction.

As we know, trains can be made to run round curves. We simply have to find out what the arrangements are which interfere with the tendency to move straight. We first think of the flanges on



These pictures show why a train keeps on the rails. The tyres are slanting as seen on the right and not flat, as on the left: this causes the wheels to press outwards and the flanges keep them in position on the rails.

the wheels, but these are of small importance. If there were nothing else, the train would ride off the rails in a moment. The next point is the way in which the tyres are cut, as we can see on this page; and, finally, there is a most important arrangement by which the outer rail on a curve is raised. When the railway is made, men have to calculate how sharp the curve is, at what rate trains are permitted to go round it, and then they have to raise the outer rail in proportion. The resistance offered by having to go uphill, so to speak, keeps the train in the path we desire.

# Why is a White Man more Civilised Than a Black Man?

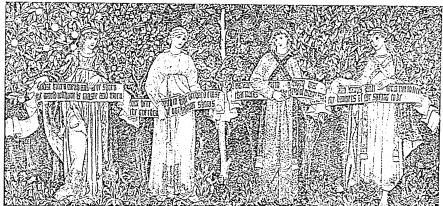
He is not always. There have been black preachers, poets, writers, missionaries, doctors, and mathematicians as civilised as any white man. But the reason why the bulk of white men are more civilised than the bulk of black men is that they inherit a civilisation which is thousands of years old and which their forefathers during all those years have prepared for them; and that, together with this inherited civilisation, they inherit the kind of brain refined by centuries of contact with civilisation which can appreciate it and make use of it. In every generation of civilised men there is a kind of give-and-take between the brains that are born and the civilisation which surrounds them. The best brains pick up the civilisation and add something to it, and this something passes on to the next generation, where the process is repeated with a progressive improvement.

But the black man and the black brain are one or two thousand years behind in this race. They have remained shut off in Africa, for example, doing and thinking the same thing for scores of generations, and neither refining their civilisation nor improving their brains by selection. As they are now coming into contact with the civilisation of other peoples they are profiting by it in a double way, and the best brains among them will gradually absorb the best of it and pass on to future generations the capacity to absorb more.

#### Are the Stars Round?

The reason why stars do not look round is simply that they are so far away. The planets are smaller than the stars, but are so near that when we look at them through a telescope we can easily see that they are round. They have a disc, as we call it. But, however powerful the telescope through which we look at the brightest or nearest stars, we never see even the smallest disc, but only a point of light. Though the star that shines as a point through the largest telescope may be a million times larger than a little planet like Venus or Mars, which shows a disc through even a small glass, it is so far away that its disc cannot be seen, and it seems probable that no improvement in the telescope, and no increase of its size, will ever enable us to see the disc of a star. But we have no doubt that the stars are really round like the Sun.

### The Story of the Beautiful Things in the Treasure-House of the World



The Orchard, a piece of beautiful English tapestry designed by William Morris

# THE CRAFTSMEN AND THEIR WORK

The art of making stained glass grew to its perfection in the medieval years of Europe. The earliest kind of coloured windows appeared very different from the large sheets of stained glass that we see here and there today; they looked like windows made of jewels: the glass, of exquisite tints, was used in small fragments of various shapes.

At first the stained glass windows were made by glaziers, and they relied on pieces of coloured glass to make a pattern. After a time the art of the painter was called in to supply the artistic quality that the glazier lacked. Stained windows ceased to be patterns in colour; they became pictures of saints and Bible figures, with all sorts of setting and backgrounds.

Some of the greatest painters of Europe have at one time or another lent their skill to this beautiful craft. Schools and centres of glass painting grew up all over Europe. Very often a whole family concentrated on this work, like the Van Linges of Holland, who worked in the seventeenth century. Sometimes it happened that famous artists designed the window and a glass painter carried out the work. This was the case in France, where men like Jean Cousin, Jean Ingres, Delacroix, and Horace Vernet found time to design coloured glass.

Generally speaking, until comparatively recent times, few names of the men who created stained glass windows have been preserved. The best work occurred in the thirteenth to the fifteenth centuries, and is found in the cathedrals and churches of that period.

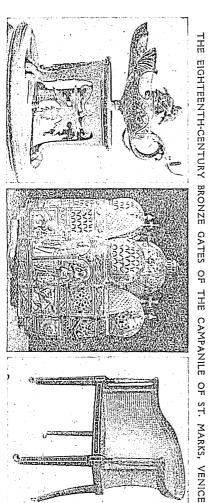
A great number of coloured windows were made during the Gothic revival in the nineteenth century. In spite of the unnatural stiffness that was produced during that period, some of the stained glass is good—as, for instance, that by John Clayton in Truro Cathedral and King's College Chapel, Cambridge, the work of Charles Winston in Glasgow Cathedral. A. C. Pugin is worthily remembered, and John Powell, who followed in his steps.

When the pre-Raphaelite movement came, Burne-Jones, Ford Madox Brown, and Dante Gabriel Rossetti made some beautiful glass work, which was fine in design and lacked the peculiar stiffness of the imitation Gothic.

Stained glass work, mosaic, and wood-carving are associated in our minds with religious architecture. The best work in all these crafts was done in the Italian Renaissance and the Golden Years of Europe when men worked simply and slowly and not trying to be clever.

PICTURES: STATUES: CARVINGS: BUILDINGS: IVORIES: CRAFTS

A BOXWOOD MEDALLION WITH GRINLING GIBBONS'S WOODWORK
A PORTRAIT OF JOHN OF LEYDEN IN ST. PAUL'S CATHEDRAL A BOXWOOD MEDALLION OF THE WIFE OF MAXIMILIAN II

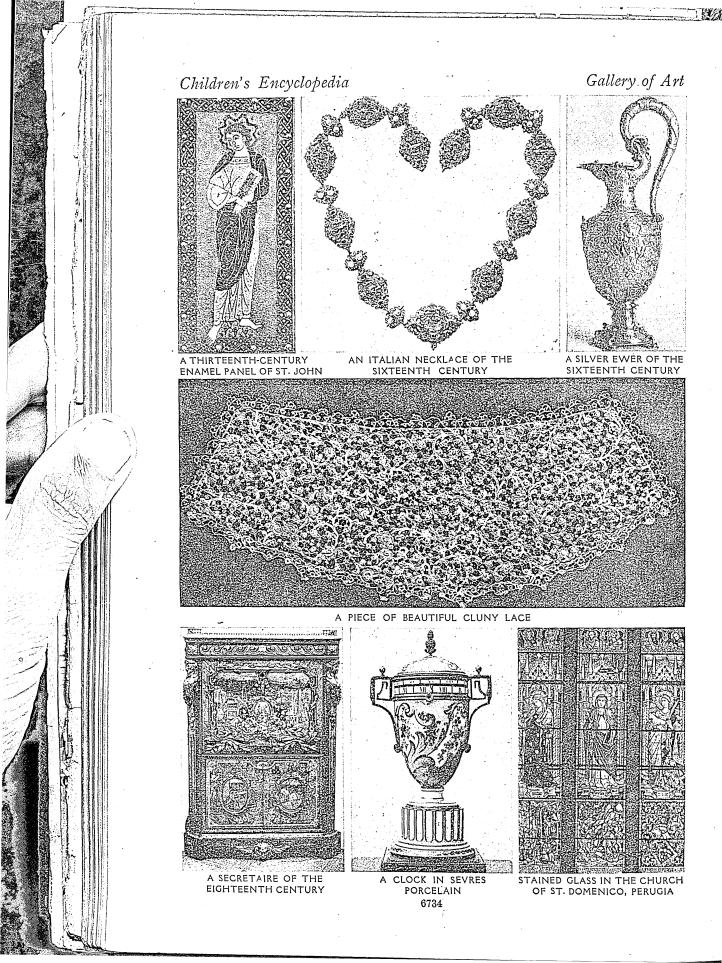


A TWELFTH-CENTURY SILVER PYX

A BRONZE LAMP IN NAPLES

A SHERATON CHAIR

# THE ART OF THE CRAFTSMEN

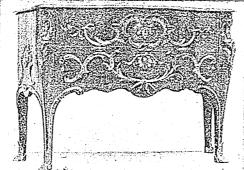


# Children's Encyclopedia

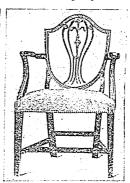
# Gallery of Art



A CHIPPENDALE CHAIR
IN MAHOGANY



A HANDSOME FRENCH CABINET OF THE EIGHTEENTH CENTURY



A HEPPLEWHITE CHAIR
IN WALNUT



A BRONZE PLAQUE OF THE EIGHTEENTH CENTURY



A SILVER SALVER OF THE SIXTEENTH CENTURY



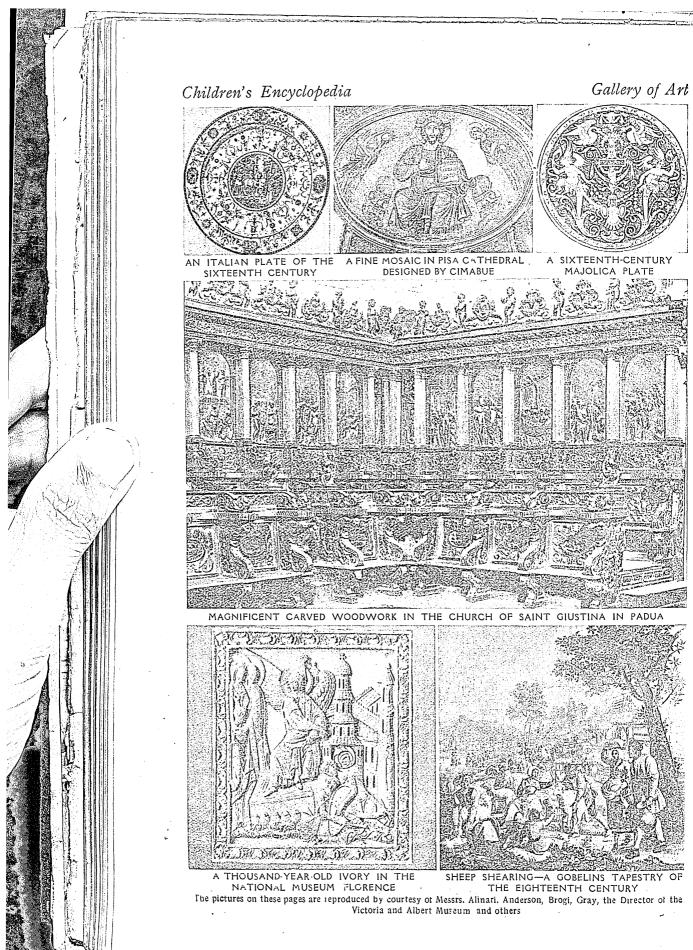
A WOODEN CANDLESTICK IN A CHURCH IN VERONA



PETER VISCHER'S BRONZE STATUE OF KING ARTHUR 6738



A SEVRES PORCELAIN VASE IN THE WATTGAU STYLE



#### THE CRAFTSMEN AND THEIR WORK

of early times, furniture as we understand it appeared in Europe, giving opportunity for a great deal of bad work. Craftsmen's fancies ran riot. It seemed not to be necessary to make furniture for strength and durability and suitability to a house: it was made in order to give the cabinet-maker a chance of being clever.

# THE LOVELY FURNITURE OF CHIPPENDALE, SHERATON, AND HEPPLEWHITE

Out of the mass of various domestic styles some very fine things appeared; furniture made by men like Thomas Chippendale, Ince and Mayhew, Sheraton, Johnson, and Hepplewhite. This furniture was good in that it was suited to the material and the purpose. Also it revealed an excellent taste, which, so far, we have not been able to improve upon.

With the era of domestic furniture came the days of marquetery and inlay. Things like long-case clocks, chests of drawers, cabinets, were embellished by patterns made of ivory, bone, brass, tortoiseshell, and mother - of - pearl inlaid into the wood. The seventeenth-century Dutch workers were the finest "marqueteurs." A famous French artist in marquetery was André Charles Boule, who worked for Louis the Fourteenth.

Side by side with the development of domestic furniture came that of the craft of pottery, or ceramics as it is generally called. This craft, like that of woodcarving, is one of the most ancient in the world. Each nation has developed its own pottery, some to a fine art, like the Greeks, Etruscans, Persians, and the Chinese, some keeping a beautiful simplicity, as in the case of the Italian, Breton, and Dutch peasant ware. It is only since the era of cheap machine-made pottery that villages and provinces all over the civilised world have ceased to have their own little potteries.

# WHAT CHINA TAUGHT THE WESTERN WORLD IN THE ART OF POTTERY

To the Chinese belongs the honour of being the greatest race of potters ever known. While other countries were content with clay and terracotta vessels of various kinds, some very beautifully shaped and coloured, like the Moorish pottery, the Chinese were slowly perfecting their art. In the fulness of time they developed the kind of ware known as porcelain, and during the fifteenth century this beautiful white and translucent pottery began to find its way to Europe.

It became the foundation of the ceramic art of the Western world.

Florentine potters turned their attention to the Chinese ware and began to imitate it. Hundreds of years passed while first one European country and then another developed artistic porcelain pottery on its own lines. During the course of this long development certain famous centres arose. In Italy there was the famous Majolica ware, a richly-coloured, finely-glazed pottery that got its name from the island of Majorca, a port of call for trading ships. A great deal of beautiful pottery was made in France, some of it distinguished by names of towns, like Nevers and Rouen, and some by names of makers like Bernard Palissy, the famous potter of the sixteenth century. Later there came the St. Cloud porcelain and the famous Sèvres ware. În the eighteenth century Sèvres became the most important porcelain factory in Europe. Some of the greatest artists of the day helped to make the wonderful figures and groups of the famous Sèvres " biscuit " ware.

# THE DELFT WARE OF HOLLAND AND THE PORCELAIN POTTERY OF GERMANY

Pottery of a very different kind was evolved at Haarlem in the beginning of the seventeenth century. This is the famous Delft ware—a curiously enamelled earthenware. Germany was the home of stoneware made at various towns on the Rhine, and presently evolved a fine and beautiful porcelain pottery which is known by the names of the towns where the industry centred, such as Meissen, Vienna, Berlin. Meissen was the most important of these, and branches sprang up in places as distant as St. Petersburg.

In about the middle of the eighteenth century porcelain manufacture started in England. Factories producing dainty and exquisite bowls, figure groups, arose at Chelsea, Bow, Worcester, and Derby. The Chelsea porcelain is the most famous of these wares and is very rare. It was only made for about a generation, and then the factory was moved to Derby, where Josiah Wedgwood had already won renown through his skilful handling of the cream-coloured Staffordshire pottery. In comparatively modern times the Doultons of Lambeth, and Villeroy and Boch of Germany revived the old stone ware, artistically treated.

The art of enamelling is in some ways kindred to the art of finely glazed pottery.

Here again we are touching on a very old handiwork of artistic peoples. This baking of a beautifully-coloured and designed glassy substance on a hard material like metal or brick was a favourite device of the races of the old world.

The Egyptians, Assyrians, Greeks and Etruscans, Chinese and Japanese, were great enamellers, and satisfied their love of shining colour in this way, bringing the enamel in conjunction with gold and silversmith's work wherever possible. The early Celts of the British Islands had this art. Some exquisite enamels made in Ireland long ago are preserved in the Dublin Museum.

# THE BEAUTIFUL FORMS THE ART OF ENAMELLING MAY TAKE

Enamel played a great part in Byzantine art, and naturally had its place in the art of the Romanesque period, the craft thus spreading all over Europe. There were centres of enamelling in many European towns. As the Renaissance years passed enamel developed into a very fine art indeed. In a way it is still developing.

There are several kinds of enamelling according to the method in which the enamel is applied to the metal base. Sometimes, as in the plique à jour enamel, the base is taken away after the enamel has been fixed, and the result is a kind of beautiful translucent coloured stone. The cloisonné enamel was made by soldering little metal strips, the shape of the design, on the metal base, and setting the pulverised enamel in these compartments. Another variety is painted enamel, which involves very intricate and absorbing labour indeed.

The most famous painter of enamels in Europe was Léonard Limosin, which meant Leonard of Limoges, who lived in the sixteenth century. Limoges enamel is famous all the world over. Jean Pénicaud was another great enameller who worked in a different way.

# A n ancient greek vase and its tapestry-weaving machine

From painting pictures on glass or pottery we come to the weaving of pictures—tapestry. Once more we are in the presence of an ancient, beautiful, and homely craft. Tapestry has been used from ancient times for the covering of floors, walls, furniture. Penelope's tapestry-weaving frame is shown on a Greek vase of the fifth century B.C. The Romans too were great makers of tapestry.

Presently, by way of monasteries, where much weaving was done, the craft spread into Europe and became incorporated with the labours of the guild of weavers. Tapestry weaving is associated with certain towns, and rare names like Jean Duval of Flanders. In the fourteenth and fifteenth centuries Arras was the great place for tapestry; then Brussels, a hundred years later, followed by Middelburg and Delft. Some men from Arras came over to work in England; hence the name arras for a woven wall hanging. In the sixteenth century Paris became a centre of the craft, and still is. In the seventeenth century Mortlake was famous for its tapestries.

Artists of great renown have made designs for tapestries—the Van Eycks, Roger van der Weyden, Raphael, Da Vinci, and many others. The princes of Europe who were great patrons of art, like the Medici, the Stuarts, the Hapsburgs, took intense interest in the tapestries they ordered to be made. In the sixteenth century William Sheldon founded tapestry factories in Warwickshire, and they did beautiful work, some of which is still preserved. A little later some good tapestry weaving was done in Ireland.

# THE FAMOUS FACTORY FOUNDED BY A KING OF FRANCE

Here again, machine-made goods have done away with the world-value of handwoven tapestries. William Morris, Burne-Jones, and others made valiant efforts to revive the craft in the late nineteenth century; but tapestry has become a luxury for the few. It is still made at the famous Gobelins and Beauvais manufactories in France. The Gobelins factory was founded by Louis the Fourteenth in 1661, and was under the personal supervision of his art directors.

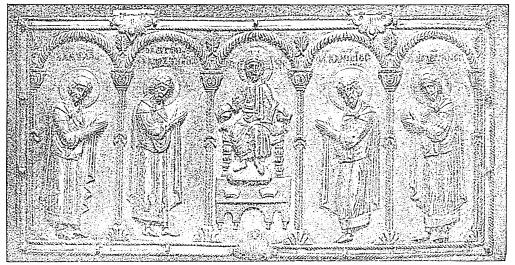
While this "picture cloth" was being woven in various places in the old Europe a great deal of attention was being paid to its sister-craft, embroidery. Work of this kind covers a very wide field, for it includes both embroidery for religious purposes, for the robes of great and royal persons, and the decorations of a house.

Embroideries were made in great quantities, of a beautiful and exquisite kind, by the princesses, housewives, and nuns of medieval and later Europe. For about a thousand years a great and minute art has been spent on the embroidery for church fittings and vestments. The ladies of Europe both inside convents and out,

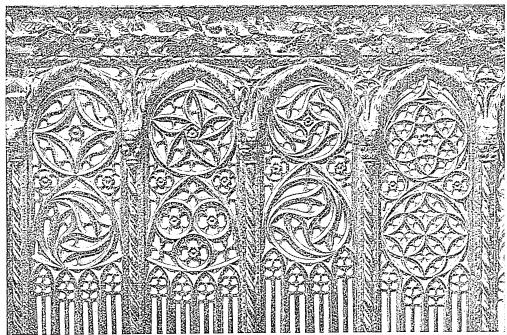
#### THE CRAFTSMEN AND THEIR WORK

gave their best years to triumphs of needlework for both secular and sacred houses, which are as far from the competence of the young girl of today as one of Raphael's compositions would be from the average art student. An infinite patience and an medan and Hindoo temples, treasure pieces of needlework; lovely specimens are to be found in most of the museums of Europe.

Probably the most famous piece of embroidery in the world is the so-called Bayeux Tapestry. This is a strip of linen



THE FOUR MARTYRS OF TREBIZOND—A RELIQUARY IN ST. MARK'S, VENICE



EIETEENTH-CENTURY GOTHIC CARVING IN SANTA MARIA GLORIOSA DEI FRARI, VENICE

intense love went to this labour; the kinds of stitches used seem countless.

In China, Japan, India, Egypt, Palestine, and wherever olden civilisations took root, we find beautiful embroideries. Nearly all Christian churches and cathedrals, Moham-

about 230 feet long, and on it is embroidered, in coloured wools, the tale of the Norman Conquest. It is said to have been the work of Queen Matilda and her ladies. This priceless record will be found reproduced in colour on pages 709 to 716.

Lace work is equally diversified and historic, and often makes part of an embroidery. Here again is an amazing variety of stitches and styles, from the various points and crochets to the old pillow-lace of Flanders.

# THE BEAUTIFUL THINGS MADE FROM GOLD AND SILVER IN BIBLE DAYS

Side by side with these various minor crafts, whose object was to supplement the larger arts, the work of the silversmith, goldsmith, and iron-worker was being not so much developed as continued. We are accustomed to thinking of gold and silver merely in connection with jewellery. We forget these metals were used in enormous quantities by the ancients. The Eastern nations, long before the dawn of Christianity, had brought the art of gold and silver work up to a very high pitch. We remember the silver and gold cups of Bible story, and here is a description of a palace in ancient Greece that makes us feel we live in days of mean achievements.

There was a gleam as it were of sun or moon through the high-roofed hall of great-hearted Alcinous. Brazen were the walls . . . and round them was a frieze of blue, and golden were the doors that closed in the good house. Silver were the door posts that were set on the brazen threshhold, and silver the lintel thereupon, and the hook of the door was of gold. And on either side stood golden hounds and silver . . . to guard the palace of the great-hearted Alcinous, being free from death and age all their days . . . Yea, and there were youths fashioned in gold, standing on firm-set bases, with flaming torches in their hands, giving light through the night.

So wrote Homer of a Greece that was already old. In the days of the rich art of Europe, this craft work was carried on by gifted men.

# The adventurous life of one of italy's master craftsmen

In sixteenth-century Italy there was, among many others, Benvenuto Cellini, who worked in gold and bronze. This man is one of the most interesting characters in the history of art. He lived from 1500 to 1571, was sculptor, goldsmith, engraver, and the author of an autobiography which tells us a great deal about his times apart from its bearing on his own riotous life. He swung a sword as readily as he wielded his tools, could never hear of a quarrel, big or small, without flinging himself into it. Exile and imprisonment were more than once his lot. He seemed to bear a

charmed life, and in the intervals of his escapades produced some of the finest craft work of Italy. His best known statue is the Victorious Perseus. A great many lovely little boxes, coffers, cups, plates, were chased and embossed by Italian artists like Cellini. They can be seen in all museums, and were so much a matter of ordinary work that very often the maker's name or sign is not engraved on the work. Visitors to Wembley saw, in a case in the Government pavilion, a most beautiful thirteenth-century golden cup, which has underneath, "Nicholas of Hereford made me."

In Germany, in the sixteenth century, there was a fine school of bronze workers headed by Peter Vischer. His tomb of St. Sebald, in the church of St. Sebald, Nuremberg, is an exquisite piece of metal work. Vischer also made the fine King Arthur statue which stands among the twenty-four bronze figures that guard the tomb of the Emperor Maximilian I, in the Hofkirche at Innsbruck in Austria.

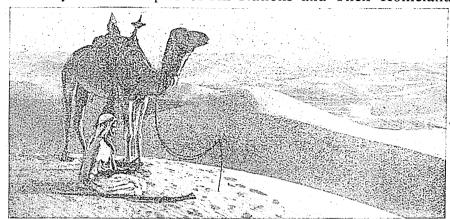
# THE UNKNOWN WORKERS IN METAL WHO ENRICHED THE GOTHIC CATHEDRALS

In France there were numbers of "imagiers" in gold, silver, and bronze, whose names have been forgotten. They helped to make the Gothic cathedrals unforgettably beautiful. Notable among them was Biscornette, who wrought the iron doors of Notre Dame. In the seventeenth century a famous craftsman, called Caffieri, an Italian, was working in France for the "Sun King." He superintended the metal work that was carried out at the Gobelins factory.

A great deal of labour in bronze and metalwork is taken for granted. It is only when we see fine gates and grilles, whose lines are strong and beautiful, that we realise how much poorer the world would be without this very old craft. We think of beaten work, like the great gates of Shalmaneser, in the Assyrian Hall of the British Museum; the Eleanor Grille and Henry the Seventh's bronze screen in Westminster Abbey; the gates of Hampton Court Palace; and then we wonder at their union of beauty and strength.

These belong to the magic of the past. But in this craft we can also be proud of the present, when we see the cast bronze gates of the Adelphi Bank, Liverpool, the Canada Gates at Buckingham Palace, and the new choir grilles in St. Paul's Cathedral.

## The Story of the Peoples of All Nations and Their Homelands



The ship of the desert in the great Sahara

## THE AFRICAN CONTINENT

A FRICA is a huge, roughly-shaped, compact mass of land, three times as big as Europe, with a fifth of its surface covered with the largest desert in the world, and the rest of it rising from the surrounding seas, by great terrace steps, to high plateaus in the centre. Brimming rivers, with courses of from one to three thousand miles, plunge down the terrace steps to join the sea; mountains guard the coast nearly everywhere, the snowy peaks of those on the east side looking down on a most wonderful group of great lakes. Such is the face of Africa.

The Sun, travelling overhead some part of the year in the greater part of Africa, looks down on millions of black and brown men, on millions of Arabs, on an ever-increasing number of white men from Europe, and on nearly all the beautiful and interesting animals with which we stock our Zoos. One of these animals, the elephant, with his valuable and coveted ivory tusks, has helped to make history in Africa.

Now, the animals and the various tribes of Negroes and other races, which are still in many cases heathen and uncivilised, have been there for an unknown length of time, roaming the splendid forests and living by the wonderful rivers and lakes, for ever absorbed in finding food and avoiding enemies. The valuable rubber trees in these forests have also helped in a very great measure to make history in Africa.

The Arabs, from the other side of the Red Sea, came at various times through the centuries, and found their way down the coasts, over desert and plain, over rivers and mountains, all over the land. Their coming brought death and hardship to the black men.

The white men did not begin to come, except to the coasts within hail of Europe, till nearly the time of Columbus; and their coming also brought woe to the black men. The sorrow of Africa can be summed up in three ill-omened words: slaves, ivory, rubber.

In the oldest maps, made by those who lived on the Mediterranean nearly 2000 years ago, all that is shown of Africa is the north and north-western shores, and the narrow land of Egypt in the north-east corner near the Isthmus of Suez. This neck of land, joining Africa to Asia, was, in the past, the great highway of the nations from east to west. But neither the civilised old Egyptians nor the peoples of the northern shores knew much of the great continent behind the

THE FIVE CONTINENTS & 100 NATIONS & RACES THAT INHABIT THEM

strip on which they lived, for the great desert stood as a barrier in the way, and the ship of the desert, the long-enduring camel, was not launched on the far-stretching ocean of sand till the much later times of the Romans.

Prince Henry the Navigator and his brave Portuguese first explored the West African coast. One of the results of their courage and perseverance was that the shape of the outer rim of the great continent was made known to the world, and Africa as a whole could be sketched on the maps. But for a long time little or nothing was known in Europe about the vast heart of Africa.

In the last century brave and good men have followed each other exploring the unknown parts of Africa, some with the view of helping to destroy the slave trade and to teach the Negroes, others to find out the sources of the rivers and to map out the country. Practically all of the Continent is now known.

We read elsewhere of those parts of Africa within our British Commonwealth, and also of Egypt; here we will look at Africa outside the British Empire.

## THE GREAT DESERT MORE THAN HALF AS BIG AS EUROPE

The eastern end of the wide, far-reaching deserts of the middle of the Old World is described elsewhere. Their western extension, separated from the eastern side only by the narrow Red Sea, and the equally narrow fertile valley of Egypt, stretches right across the wide part of Africa to the Atlantic. This is the immense desert of the Sahara, more than half the size of Europe. The greater part is rainless, sandy, rocky, or with poor, grassy lands; here and there are oases, such as we see in Asia, where springs of precious water, with refreshing vegetation, make life possible.

The hills that rise from the sun-scorched Sahara are higher than any in Great Britain. The Atlas Mountains, opposite Spain on its northern boundaries, are very nearly as high as the Swiss mountains, with fine valleys and lovely scenery.

The Abyssinian Highlands, south-west of the Red Sea, consists of high and rugged mountains rising from a series of tablelands, with deep, dark ravines between. South of the Abyssinian heights rise the twin giants of Africa—Kilimanjaro and Kenya—both close to the Equator and between the sea and great lake Victoria

Nyanza, which is as large as Scotland. Both are taller than Mont Blanc by thousands of feet. Beyond the lake is a third huge peak, Ruwenzori.

The land in this mountainous region sinks to the sea in particularly steep terraces. The hilly borders of the high inland tablelands sometimes come close down to the sea; sometimes there is a varying width of coastal plain, generally very unhealthy for Europeans.

# HOW THE RIVERS HELP THE EXPLORER IN OPENING UP THE COUNTRY

The rivers of Africa are not open gates for trade and conquest like the Yangtse-kiang, the Rhine, and the St. Lawrence, for in most cases through navigation from the sea inland is impossible. Still, when the difficulties of the rapids are overcome, explorers find the immense reaches of the navigable parts of some of the rivers the easiest way by which to open up the country to trade.

There is at least one immense river to every side of Africa. On the north, draining to the Mediterranean for over 3000 miles, is the Nile, one of the most interesting and wonderful rivers in the world "flowing through Egypt like some grave, mighty thought threading a dream." The first cataract, or rapid, on the Nile is hundreds of miles from the sea.

Into the Indian Ocean on the east side pours the great Zambesi River, opposite the island of Madagascar. Navigation is very difficult near its mouth. Its tributary, the Shiré, drains Lake Nyasa, and is of great use in passing through the country. The magnificent Victoria Falls, high up on the Zambesi itself, excels Niagara. The great river suddenly dashes over a cliff about 330 feet high with a deafening roar, while the spray is shot high in air. The falls are one of the wonders of the world.

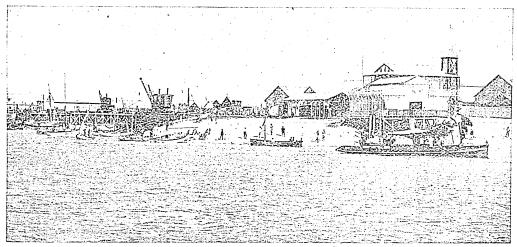
# THE RIVER THAT RUNS THREE THOUSAND MILES TO JOIN THE ATLANTIC

From the high tableland beyond the group of great lakes rises the mighty Congo, nearly 3000 miles long; it circles away to the western side of the continent to empty its immense volume of waters into the Atlantic. The explorer Stanley marched for five months through unbroken forests in its basin, and his name is commemorated in the Stanley Falls. There are over 6000 miles of navigable waterway in the Congo and its tributaries that are above the deep gorge through which it reaches the sea by many falls.

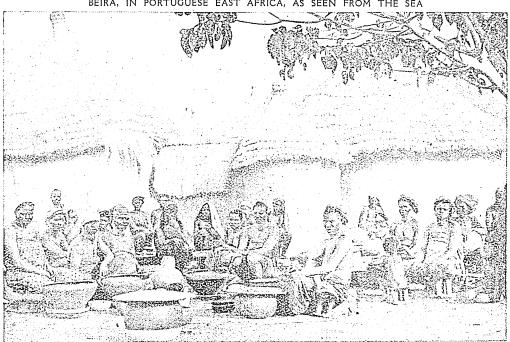
## THE AFRICAN CONTINENT

The Niger, with its tributary the Benue, draining into the Gulf of Guinea, is also very important in opening up a but a small minority in every region. way to some of the richest land in Africa. The people belonging by birth to the is also very important in opening up a It touches the Sahara on the south, near Timbuctoo, the central meetingplace of the caravan traffic.

tries, Abyssinia and Liberia, is controlled by races from outside its borders, who are continent have not been able to establish and preserve a civilisation of their own, in touch with the outside world. This has



BEIRA, IN PORTUGUESE EAST AFRICA, AS SEEN FROM

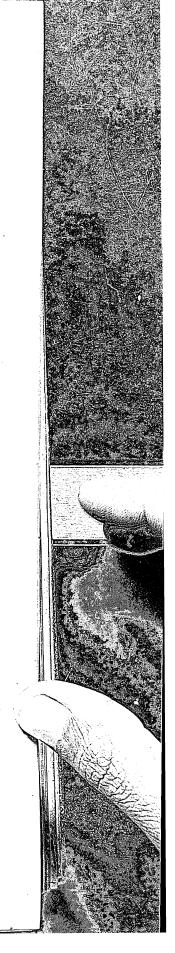


A NATIVE MARKET-PLACE IN PARATAU, DAHOMEY

The Zambesi, Congo, and Niger may be called rivers of the future, so vast are the resources to be opened up in their basins. The Nile has a great past, of which we read in our story of Egypt.

Africa today, with the exception of two comparatively unimportant coun-

been owing partly to the unprogressive character of the Mohammedan religion, which has held sway in the north of the continent, while the centre and the south of the continent are a backwater in the stream of human life, where primitive races of mankind have stagnated for centuries.



In the story of Spain we read how the Mohammedans swept along the northern States of Africa—often called the Barbary States from their early inhabitants, the Berbers—and, crossing the Strait of Gibraltar, advanced far into Europe. Northern Africa is still Mohammedan, but across its whole width it is divided into Protectorates under European Powers. Only by some such device could the continent be opened to the world for the benefit of mankind.

In the same way the absence of civilisation and the low standard of life in the parts of the continent where the black races lived made some system of control necessary, especially as, without it, the Negro races became a prey to adventurers from more civilised races, and the ravages of slavery and drink. In consequence, the partition of Africa between seven European countries went on by a kind of general assent and without strife, those who were first in the field, with trading posts and possessions round the coast, having the first and best chance.

Seven European Powers with considerable African possessions were Great Britain, France, Germany, Italy, Belgium, Portugal, and Spain. The Great War removed Germany from Africa as a governing Power, and her possessions there were divided between Britain, France, and Belgium. All the parts of Africa controlled by Britain have been described in other pages. Here we have to glance first at the two independent countries and then at the regions under European Powers.

## Abyssinia

Abyssinia, or Ethiopia, is the mountain land from which descend to the Nile some of the chief tributaries that cause the main stream to overflow when the snows melt, and fertilise Lower Egypt. The Blue Nile, the Atbara, and the Sobat, are all Abyssinian streams.

Abyssinia is divided into a number of provinces representing semi-independent territories having a kind of feudal relationship to the head ruler of the country. Formerly the feudal sovereign used the title of Negus; now he is called Emperor, and rules over 350,000 square miles and ten million people. In 1917 a daughter of Menelik was proclaimed empress though political power was almost entirely in the hands of a regent.

Abyssinia is a curious illustration of a country that has kept its ancient religion and institutions, but has deteriorated through want of education and of contact with the rest of the world.

The religion is, and has always been, Christian—the Coptic branch of the Church of Alexandria—but it has become corrupt. Abyssinia now, however, is coming into closer touch with civilised life. A railway has been laid into the middle of the country from Jibuti, the port of French Somaliland, and trade is also carried on with Massowah, the port of Italian Eritrea, with British and Italian Somaliland, down the rivers to Khartoum, and through Kenya to Nairobi and Mombasa on the East African coast. Several hundreds of Europeans live more or less permanently in Abyssinia, and the telegraph and telephone are in use, so that the country at last is emerging from its seclusion. Its chief exports are hides (for the land is largely pastoral in character), coffee, beeswax, and ivory.

## Liberia

The Liberian Republic, capital Monrovia, about one-third larger than Scotland, with perhaps two million population, has existed since 1847. It was formed to be a home for freed slaves of the West African races, the scheme receiving its first impulse from the American antislavery movement and from the partly educated Negroes of the United States.

Liberia lies at the bend of the West African coast eastward into the Gulf of Guinea, with the British colony of Sierra Leone on the west of it and the French Ivory Coast colony on the east of it. Business activity is chiefly on the coast, where the educated black people are Christians and their language English. Inland the tribes are still pagan and the land is undeveloped. The Negro directors of the Republic have not yet shown the skill in management of public affairs and in business that was expected of them, and the Republic needs financial help, as well as sympathy, from without. chief exports are rubber, palm-oil, coffee, and ivory. The Negroes of the coast of Liberia, known as Krumen, make very useful sailors.

## French Africa

With the exceptions of the little patch of French Somaliland, near the exit from the Red Sea, where Jibuti serves as a

# THE NATIVE PEOPLES OF AFRICA



FOUR SAKALAVA GIRLS OF MADAGASCAR



A JEWISH SINGING-GIRL OF ALGERIA



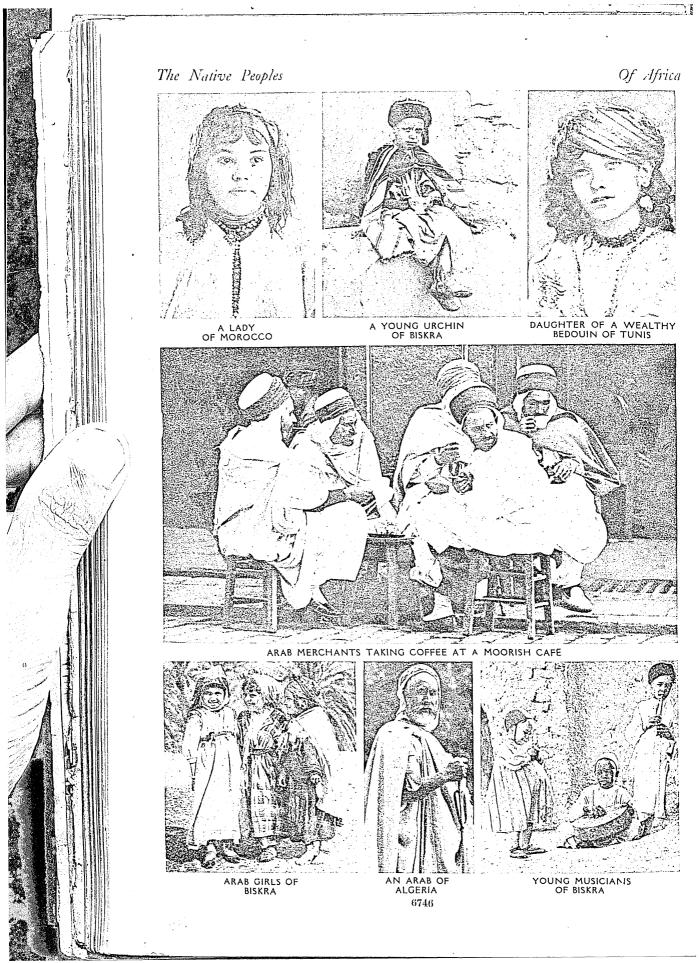
A GIRL OF TUNIS PREPARING COUSCOUS, A PREPARATION OF RICE



A LADY OF MOROCCO



A MOSLEM BOYS' SCHOOL AT BISKRA, IN ALGERIA





A NATIVE OF ANGOLA. OR PORTUGUESE WEST AFRICA



A BEAUTIFUL LITTLE GIRL OF TUNIS



A NEGRO BOY
OF FRENCH SUDAN



AN OLD ARAB VEGETABLE SELLER IN TUNIS



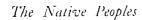
BEDOUIN BEGGARS OF TUNIS



A KABYLE GIRL 6747



GIRLS OF TUNIS





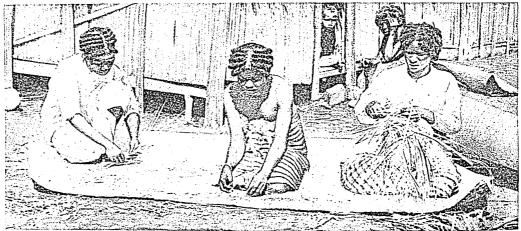
A WOMAN OF FRENCH GUINEA AND HER BABY



A MOTHER AND CHILD OF MADAGASCAR



A MOTHER AND CHILD OF DAKAR, IN SENEGAL



WOMEN OF MADAGASCAR MAKING MATS



AN ARAB WOMAN OF ALGERIA AND HER CHILD



A HAPPY HOME IN MOROCCO 6748



A YOUNG FAMILY OF TRIPOLITANIA

## THE AFRICAN CONTINENT

port for Abyssinia, and of the large island of Madagascar, with about four million people, the French empire in Africa is in a solid, but curiously shaped block. The French possessions in Africa cover over 4000 square miles, with a population of over forty millions.

Algeria, the northernmost stretch of African coast nearest to France, is, like Senegal, represented directly in the French Parliament; but it also has its own government as a colony. Its occupation by the French was a blessing to mankind, for the coast had been the headquarters of a nest of fierce pirates, who made the navigation of the western Mediterranean a terror for peaceful ships.

The French captured Algiers in 1830, and gradually annexed the adjoining country, about four times as large as England, extending beyond the Atlas Mountains, and inhabited chiefly by Arabs, Berbers, Jews, and Moors. In 1881 the French took Tunis, about as large as England, with two million people. As lately as 1912 they undertook supervision of the Sultanate of Morocco as a French Protectorate, and arranged with Spain that a part of the country opposite Gibraltar, centring on Tetuan, should be supervised by Spain. The government of the French part of Morocco since then has been extremely successful, and a country hitherto almost closed against the world has been opened and made peaceful, with a strong promise of prosperity, while Spanish Morocco has continued rebellious against Spain.

Of the six million people who live in Morocco nine-tenths are in the French Protectorate, and the rest are under Spain. Southward of Morocco, Algeria, and Tunis, the whole of the great Sahara Desert, from the Atlantic to the frontiers of Tripoli, and reaching to the Libyan Desert of Egypt and the Anglo-Egyptian Sudan, has been attached to a great colony known as French West Africa. In this area are included Senegal, one of the oldest of French settlements and honoured with a deputy in the French Parliament, and the upper regions of the River Niger; while dipping down to the Atlantic coast, between patches of British colonies, are French Guinea, the Ivory Coast, and Dahomey, once one of the most cruelly governed lands on the face of the Earth.

Inland this colony of French West Africa joins on to another great governorship, that of French Equatorial Africa.

## Italian A'rica

The populations of the Italian colonies in Africa, Eritrea on the Red Sea, and Italian Somaliland, stretching along the eastern coast from Cape Guardafui to the River Juba, with Tripoli in the north, backing on the deserts to the tropical line, amount to over two millions.

Up to the present the Italians have not been as successful as the French in living in agreement with African races under their protection or near their borders. From 1894 to 1896 they were engaged in war with Abyssinia, while making good their footing on the East African coast, and were severely defeated in the end by the Emperor Menelik. In Tripoli fighting has frequently recurred, and Italy has not yet made good her claim to be an acceptable guardian of more backward races in the same degree that the French have succeeded.

## Belgian Africa

The Belgian Congo was founded by King Leopold II. of Belgium in 1885, and about twenty years later was recognised as belonging to Belgium.

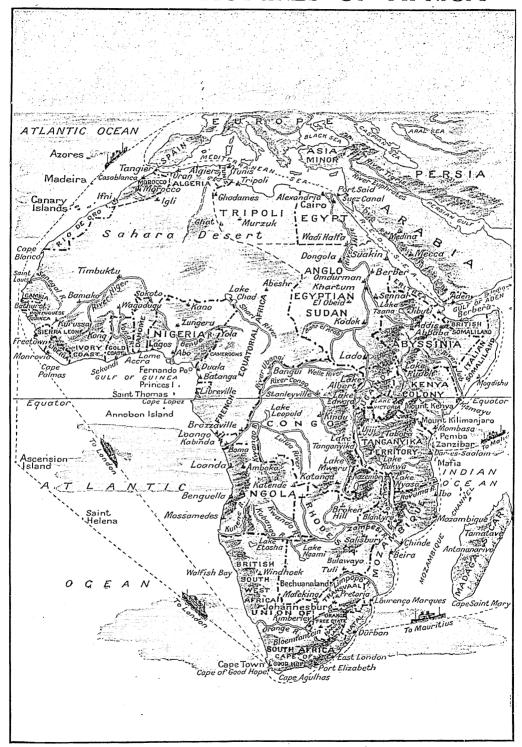
The lower part of the Congo was largely explored by Sir H. M. Stanley, and the highest upper part by Livingstone. It was Stanley who started the colony for the Belgian king. The country now includes more than 900,000 square miles. Its population is doubtful. Though the colony is subdivided into a great number of territories, and half of the 7000 Europeans resident in it are officials, no one can estimate with certainty the population made up of many small tribes living in forest villages. Probably they make up a total of about eleven millions.

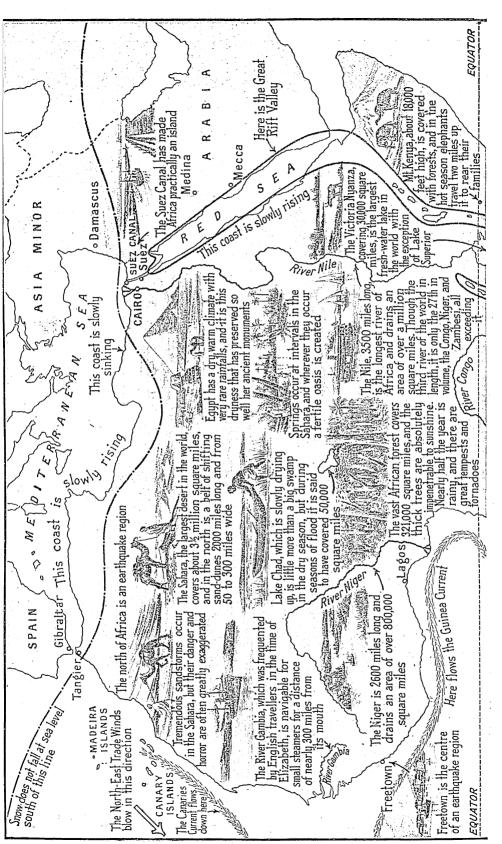
The development of the rubber trade led to frightful cruelty by the managers of this business, who were said to keep the natives in a state of veiled slavery, but these conditions have happily disappeared since the death of King Leopold, a man of no reputation, and the colony is now in a hopeful state.

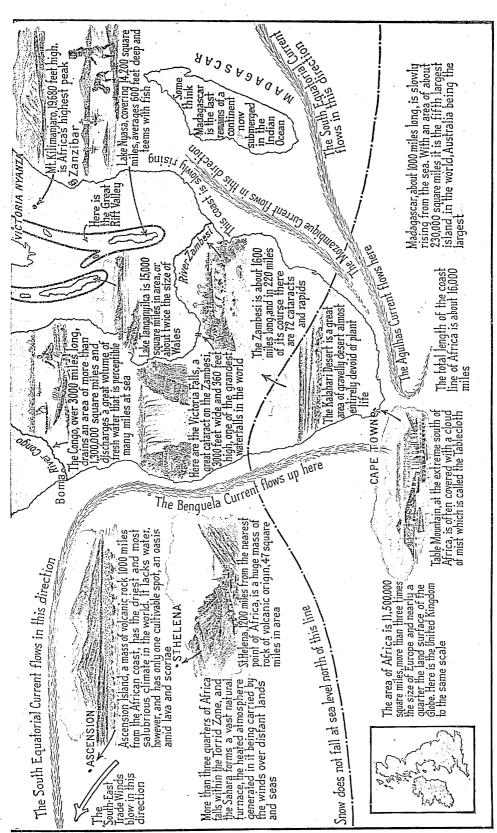
Its capital is Léopoldville. Other towns of importance are Elisabethville and Stanleyville. Boma, situated where the Congo broadens into an estuary, is the chief seaport. The country stretches

a 10

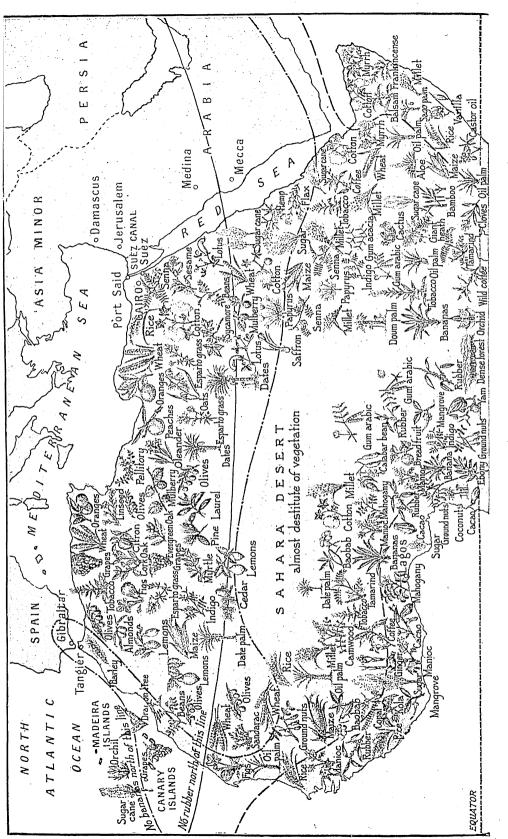
## GROUP 12 PICTURE ATLAS SECTION 55 MAPS AND PICTURES OF AFRICA

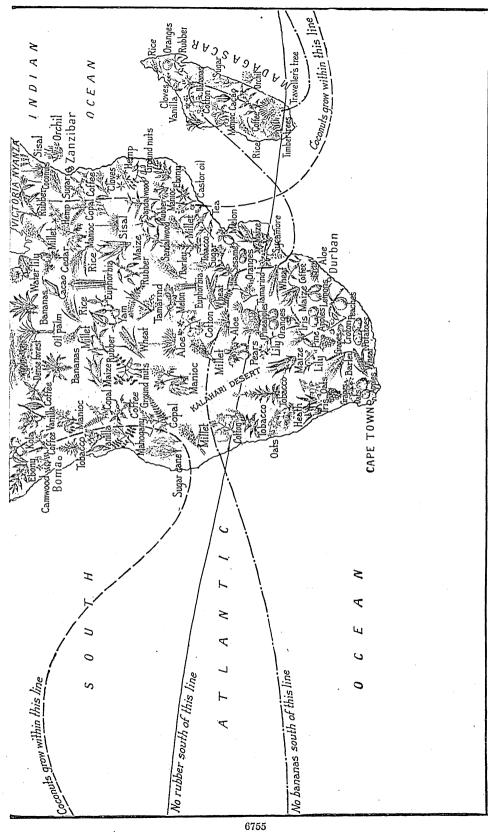




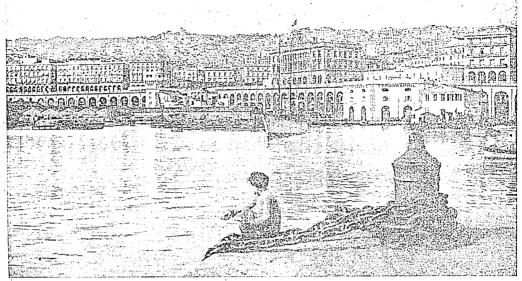


OF THE BIGGEST FORESTS AND THE SECOND LARGEST FRESHWATER LAKE IN THE WORLD BESIDES THE BIGGEST DESERT, AFRICA HAS ONE

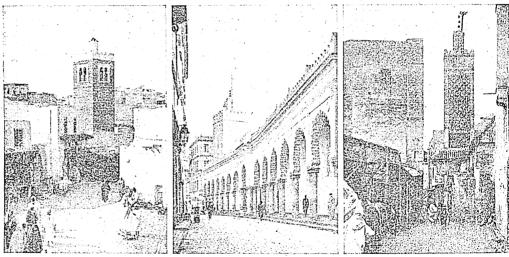




AS MAY BE SEEN FROM THIS PICTURE-MAP MANY FOOD PLANTS. AND PLANTS OF GREAT COMMERCIAL VALUE, ARE GROWN IN AFRICA



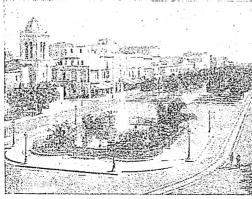
ALGIERS, CAPITAL OF ALGERIA, BUILT ON A HILLSIDE OVERLOOKING THE MEDITERRANEAN



A MARKET-PLACE IN TUNIS

THE GREAT MOSQUE OF ALGIERS

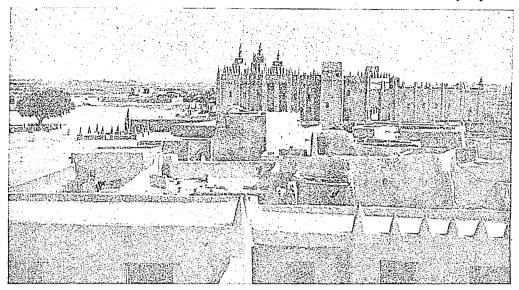
A MOSQUE IN FEZ, A CAPITAL OF MOROCCO



MARINE AVENUE IN TUNIS



A MOSQUE IN TUNIS



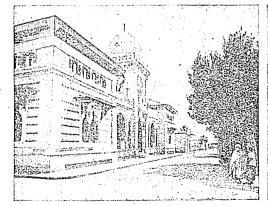
AN OLD SUDANESE MOSQUE DUG OUT OF THE SAND AT DJENNE, IN FRENCH SUDAN



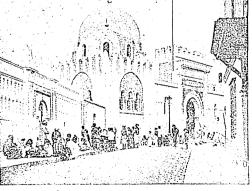
A PALM-SHADED STREET
IN BISKRA

THE SOUTH GATE OF TANGIER

THE VILLAGE MOSQUE OF BISKRA

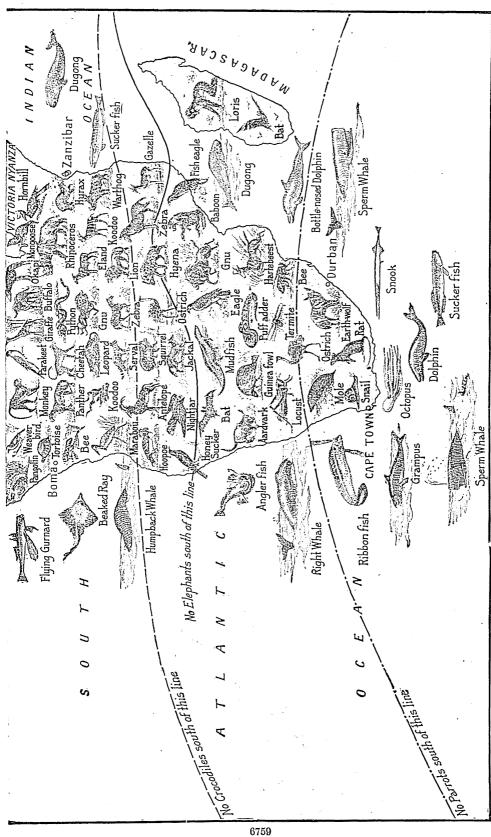


THE HOTEL DE VILLE AT BISKRA IN ALGERIA

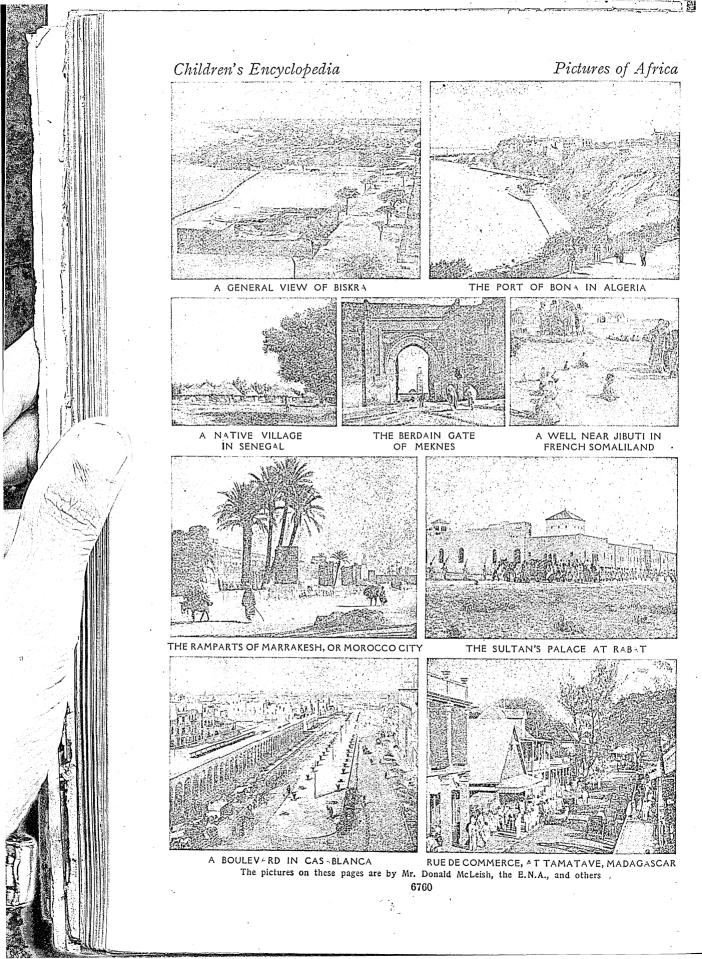


THE MOSQUE OF SIDI-EL-RAMAN IN ALGIERS

A Jagorian Taranta
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THE AFRICAN CONTINENT TEEMS WITH WILD LIFE, INCLUDING SUCH INTERESTING CREATURES AS THE LION, THE ELEPHANT, AND THE HIPPOPOTAMUS



## One Thousand Poems of All Times and All Countries

Shelley's Lament for Keats

THE poet Shelley had some acquaintance, though not very intimate, with John Keats, and when Keats died he lamented him, under the poetical name of Adonais, in one of the great elegies of English literature. The poem is too long to be given here, but below is a selection from its 55 stanzas. Shelley calls on the Muse Urania to join him in his grief. He compares the old misused poet John Milton and the young misused poet John Keats; but Keats has passed beyond man's disdain and neglect to a loftier destiny. A description of the last resting-place of the poet in Rome follows, and then, in a great finale, Shelley imagines his own spirit, "borne darkly, fearfully, afar," joining the soul of Adonais in the realms of the Eternal.

## **ADONAIS**

WEEP for Adonais—he is dead!
O, weep for Adonais! though our

Thaw not the frost which binds so dear a head!

And thou, sad Hour, selected from all years

To mourn our loss, rouse thy obscure compeers,

And teach them thine own sorrow, say:
"With me

Died Adonais; till the Future dares Forget the Past his fate and fame shall be An echo and a light unto eternity!"

O, WEEP for Adonais—he is dead! Wake, melancholy Mother, wake and weep!

Yet wherefore? Quench within their burning bed

Thy fiery tears, and let thy loud heart keep

Like his, a mute and uncomplaining sleep; For he is gone where all things wise and fair

Descend; oh, dream not that the amorous Deep

Will yet restore him to the vital air; Death feeds on his mute voice, and laughs at our despair.

Wishing to make the contrast between old and young poets who had been scorned and ill-used in their day, Shelley now turns to Milton, and from him leads again up to Keats, the last and youngest sufferer.

Most musical of mourners, weep again!
Lament anew, Urania! He died,
Who was the Sire of an immortal strain,
Blind, old, and lonely, when his country's

pride,
The priest, the slave, and the liberticide,
Trampled and mocked with many a
loathèd rite

Of lust and blood; he went, unterrified,

Into the gulf of death; but his clear Sprite

Yet reigns o'er earth; the third among the sons of light.

Most musical of mourners, weep anew!
Not all to that bright station dared to climb;

And happier they their happiness who knew,

Whose tapers yet burn through that night of time

In which suns perished; others more sublime,

Struck by the envious wrath of man or god, Have sunk, extinct in their refulgent prime;

And some yet live, treading the thorny road

Which leads, through toil and hate, to Fame's serene abode.

But now thy youngest, dearest one, has perished,

The nurshing of thy widowhood, who grew Like a pale flower by some sad maiden cherished,

And fed with true-love tears instead of dew:

Most musical of mourners, weep anew! Thy extreme hope, the loveliest and the

The bloom, whose petals, nipped before they blew,

Died on the promise of the fruit, is waste; The broken lily lies—the storm is overpast.

After an outburst against the harsh critics in the Press for their treatment of Keats the poet regains his calm, and rebuking himself for the violence he has shown, says:

PEACE, peace! he is not dead, he doth not sleep;

He hath awakened from the dream of life.

POEMS · SONGS · BALLADS · VERSES AND RHYMES WITH MUSIC

He passes on into the most tender and lovely part of the poem. in which he develops the idea that the poet has escaped all human woes and has been re-absorbed into the Creative Power from whence he came.

He has outsoared the shadow of our night; Envy and calumny and hate and pain, And that unrest which men miscall delight; Can touch him not and torture not again; From the contagion of the world's slow stain

He is secure, and now can never mourn A heart grown cold, a head grown grey in vain:

Nor, when the spirit's self has ceased to burn.

With sparkless ashes load an unlamented urn.

He is made one with Nature; there is

His voice in all her music, from the moan Of thunder to the song of night's sweet bird;

He is a presence to be felt and known In darkness and in light, from herb and stone,

Spreading itself where'er that Power may move

Which has withdrawn his being to its own; Which wields the world with neverwearied love,

Sustains it from beneath, and kindles it

He is a portion of the loveliness
Which once he made more lovely: he
doth bear

His part, while the one Spirit's plastic stress Sweeps through the dull, dense world, compelling there

All new successions to the forms they wear; Torturing th' unwilling dross that checks its flight

To its own likeness, as each mass may bear; And bursting in its beauty and its might From trees and beasts and men into the Heaven's light.

After a vision of the poet joining the dead poets who are "inheritors of unfulfilled renown," but yet are "robed in dazzling immortality," Shelley leaves these empyrean heights and leads us to the grave in Rome—the grave of which he said "it might make one in love with death to think that one should be buried in so sweet a place."

OR go to Rome, which is the sepulchre, Oh, not of him, but of our joy: 'tis nought

That ages; empires, and religions there Lie buried in the ravage they have wrought;

For such as he can lend; they borrow not

Glory from those who made the world their prey;

And he is gathered to the kings of thought Who waged contention with their time's decay,

And of the past are all that cannot pass away.

Go thou to Rome—at once the paradise, The grave, the city, and the wilderness; And where its wrecks like shattered mountains rise,

And flowering weeds, and fragrant copses dress

The bones of Desolation's nakedness,
Pass, till the spirit of the spot shall lead
Thy footsteps to a slope of green access
Where, like an infant's smile, over the dead
A light of laughing flowers along the
grass is spread;

And grey walls moulder round, on which dull Time

Fceds, like slow fire upon a hoary brand; And one keen pyramid with wedge sublime;

Pavilioning the dust of him who planned This refuge for his memory, doth stand Like flame transformed to marble; and beneath

A field is spread, on which a newer band Have pitched in Heaven's smile their camp of death

Welcoming him we lose with scarce extinguished breath.

Here pause: these graves are all too young as yet

To have outgrown the sorrow which consigned

Its charge to each; and if the seal is set Here, on one fountain of a mourning mind.

Break it not thou! too surely shalt thou

Thine own well full, if thou returnest home,

Of tears and gall. From the world's bitter wind

Seek shelter in the shadow of the tomb. What Adonais is, why fear we to become?

And now begins the great finale of the poem. The poet sees all life as a temporary vision, and the human spirit as an emanation from God going back to God, and, freed from earthly restraints, he rises on the wings of imagination to join the soul of Adonais in the realms of the Eternal.

THE One remains, the many change and pass:

Heaven's light for ever shines, Earth's shadows fly;

Life, like a dome of many-coloured glass, Stains the white radiance of Eternity, Until Death trumples it to fragments. Die,

If thou wouldst be with that which thou dost seek!

Follow where all is fled! Rome's azure sky,

Flowers, ruins, statues, music, words, are weak

The glory they transfuse with fitting truth to speak.

That Light whose smile kindles the Universe,

That Beauty in which all things work and move,

That Benediction which the eclipsing Curse

Of birth can quench not, that sustaining Love

Which, through the web of being blindly wove

By man and beast and earth and air and

Burns bright or dim, as each are mirrors of The fire for which all thirst, now beams on me

Consuming the last clouds of cold mortality.

The breath whose might I have invoked in song

Descends on me; my spirit's bark is driven

Far from the shore, far from the trembling throng

Whose sails were never to the tempest given;

The massy earth and spherèd skies are

I am borne darkly, fearfully, afar; Whilst, burning through the inmost veil of Heaven,

The soul of Adonais, like a star, Beacons from the abode where the Eternal are.

## CHERRY-RIPE

This little lyric in praise of Julia's smiling lips was written by Robert Herrick, who was born in 1591 and died in 1674. He was a master of the art of writing lyrical poetry.

CHERRY-ripe, ripe, ripe, I cry, Full and fair ones; come and buy. If so be you ask me where They do grow, I answer: There Where my Julia's lips do smile; There's the land, or cherry-isle, Whose plantations fully show All the year where cherries grow.

## TILL WE HAVE BUILT JERUSALEM

William Blake, the mystical poet and painter, who was born in 1757 and died in 1827, wrote in visions, which must always have a poetical interpretation. He speaks through spiritual suggestions that have a moving but indefinite beauty, which characteristic is illustrated in these muchquoted yet evasive lines. They are really an appeal for the reign of the Christly spirit in the life of England.

A ND did those feet in ancient time
Walk upon England's mountains
green?

And was the holy Lamb of God On England's pleasant pastures seen?

And did the Countenance Divine Shine forth upon our clouded hills? And was Jerusalem builded here Among these dark Satanic Mills?

Bring me my bow of burning gold!
Bring me my arrows of desire!
Bring me my spear: O clouds, unfold!
Bring me my chariot of fire!

I will not cease from mental fight,
Nor shall my sword sleep in my hand,
Till we have built Jerusalem
In England's green and pleasant land.

## AE FOND KISS

This parting love song by Robert Burns was a real parting that actually took place and lasted. The lady concerned was the friend with whom the poet carried on a correspondence under her pen-name of Clarinda. Sir Walter Scott once said that the last four lines of the second verse "contain the essence of a thousand love tales."

AE fond kiss, and then we sever!

Ae fareweel, alas, for ever!

Deep in heart-wrung tears I'll pledge thee, Warring sighs and groans I'll wage thee. Who shall say that fortune grieves him While the star of hope she leaves him?

Me, nae cheerfu' twinkle lights me, Dark despair around benights me.

I'll ne'er blame my partial fancy, Naething could resist my Nancy; But to see her was to love her, Love but her, and love for ever. Had we never loved sae kindly, Had we never loved sae blindly, Never met, or never parted, We had ne'er been broken-hearted.

Fare thee weel, thou first and fairest!
Fare thee weel, thou best and dearest!
Thine be ilka joy and treasure,
Peace, enjoyment, love, and pleasure.
Ae fond kiss, and then we sever;
Ae fareweel, alas, for ever!
Deep in heart-wrung tears I'll pledge thee,
Warring sighs and groans I'll wage thee.

## LOUD IS THE VALE

This poem tells the story of Wordsworth's mind as he took an evening walk in the Lake District, in September 1806, after he had read in the newspaper that the popular statesman of that day Charles James Fox lay dying. A heavy storm had passed, and all the mountain streams were rushing into the valley The poet was calmed by the thought that the passing from Earth of men's leaders is but an incident in the universal drama of God's great design.

L OUD is the vale! the voice is up
With which she speaks when storms
are gone,

A mighty unison of streams! Of all her voices, one!

Loud is the vale; this inland depth In peace is roaring like the sea; Yon star upon the mountain-top Is listening quietly.

Sad was I, even to pain deprest, Importunate and heavy load! The Comforter hath found me here Upon this lonely road;

And many thousands now are sad, Wait the fulfilment of their fear; For he must die who is their stay,. Their glory disappear.

A power is passing from the earth To breathless Nature's dark abyss; But when the great and good depart What is it more than this:

That Man, who is from God sent forth, Doth yet again to God return? Such ebb and flow must ever be, Then wherefore should we mourn?

## HOME NO MORE HOME TO ME

When Robert Louis Stevenson left his homeland, in 1887, to nourish his failing strength in high, dry parts of America and farther afield, he seemed to have a feeling that he would not return. Not long before his death in the Samoan Islands he sent home Songs of Travel, written during the seven years of his wanderings, and into them came farewell strains which afterwards seemed prophetic. This poem, written after the break up of the Scottish family household, shows how pathetic memories haunted his exile.

HOME no more home to me, whither must I wander?

Hunger my driver, I go where I must.
Cold blows the winter wind over hill and
heather:

Thick drives the rain, and my roof is in the dust.

Loved of wise men was the shade of my roof-tree.

The true word of welcome was spoken in the door:

Dear days of old, with the faces in the firelight,

Kind folks of old, you come again no more.

Home was home then, my dear, full of kindly faces;

Home was home then, my dear, happy for the child.

Fire and the windows bright glittered on the moorland;

Song, tuneful song, built-a palace in the wild.

Now, when day dawns on the brow of the moorland,

Lone stands the house, and the chimneystone is cold.

Lone let it stand now the friends are all departed,

The kind hearts, the true hearts, that loved the place of old.

Spring shall come, come again, calling up the moor-fowl;

Spring shall bring the sun and rain, bring the bees and flowers;

Red shall the heather bloom over hill and valley,

Soft flow the stream through the evenflowing hours;

Fair the day shine as it shone on my childhood,

Fair the day shine on the house with open door;

Birds come and cry there and twitter in the chimney,

But I go for ever and come again no more.

## THE OXEN

When Thomas Hardy had won a place in the foremost rank of English novelists he proceeded, quite late in life, to take a high position as a poet with his great drama The Dynasts, which deals with Napoleon: and he supplemented his repute by such exquisite workmanship as this reference to the tradition that oxen kneel in their stalls on Christmas Eve.

CHRISTMAS Eve, and twelve of the clock. "Now they are all on their knees," An elder said as we sat in a flock
By the embers in hearthside ease.

We pictured the meek mild creatures where They dwelt in their strawy pen, Nor did it occur to one of us there To doubt they were kneeling then.

So fair a fancy few would weave In these years! Yet I feel, If someone said on Christmas Eve, "Come; see the oxen kneel

"In the lonely barton by yonder coomb
Our childhood used to know,"
I should go with him in the gloom,
Hoping it might be so.

#### SONG

Shelley had a keen poetic appreciation of the unhappiness he caused himself. He turned the edge of his troubles by putting them into poetry. In this song he is so conscious of doing it that he almost smiles at himself. And then how charmingly he enumerates the delightful things he loves that contradict his own despondency!

RARELY, rarely, comest thou,
Spirit of Delight!
Wherefore hast thou left me now
Many a day and night?
Many a weary night and day
'Tis since thou art fled away.

How shall ever one like me
Win thee back again?
With the joyous and the free
Thou wilt scoff at pain.
Spirit false! thou hast forgot
All but those who need thee not.

As a lizard with the shade
Of a trembling leaf,
Thou with sorrow art dismayed;
Even the sighs of grief
Reproach thee, that thou art not near,
And reproach thou wilt not hear.

Let me set my mournful ditty
To a merry measure;
Thou wilt never come for pity,
Thou wilt come for pleasure,
Pity then will cut away
Those cruel wings, and thou wilt stay.

I love all that thou lovest,
Spirit of Delight!
The fresh Earth in new leaves dressed,
And the starry night;
Autumn evening, and the morn
When the golden mists are born.

I love snow, and all the forms
Of the radiant frost;
I love waves, and winds, and storms,
Everything almost
Which is Nature's, and may be
Untainted by man's misery.

I love tranquil solitude,
And such society
As is quiet, wise, and good;
Between thee and me
What difference? but thou dost possess
The things I seek, not love them less.

I love Love—though he has wings,
And like light can flee;
But, above all other things,
Spirit, I love thee.
Thou art love and life! Oh, come,
Make once more my heart thy home.

## AFTERWARDS

Of all the poetry with which Thomas Hardy has surprised the world in his later years this suggestion of what his neighbours may say of him when he is gone is the most delicate and tender. It brings a new friendship for him into every heart. Two verses of the poem are here omitted.

WHEN the Present has latched its postern behind my tremulous stay, And the May month flaps its glad green leaves like wings,

Delicate-filmed as new-spun silk, will the neighbours say,

"He was a man who used to notice such things?"

If it be in the dusk when, like an eyelid's soundless blink,

The dewfall-hawk comes crossing the shades to alight

Upon the wind-warped upland thorn, a gazer may think,

"To him this must have been a familiar sight."

And will any say when my bell of quittance is heard in the gloom,

And a crossing breeze cuts a pause in its out-rollings,

Till they rise again, as they were a new bell's boom,

"He hears it not now, but used to notice such things?"

## WE MUST BE FREE OR DIE

The year 1802 was one of terrible danger to England. She had made a hampering and insincere peace with Napoleon, which he was obviously using to prepare for her complete overthrow. Every action of his showed that he was preparing for deadly war, and that England was the enemy. This was the time when Wordsworth penned the proud claims for British freedom and manhood in this rousing sonnet.

It is not to be thought of that the flood Of British freedom, which, to the open sea

Of the world's praise, from dark antiquity Hath flowed, "with pomp of waters, unwithstood,"

Roused though it be full often to a mood Which spurns the check of salutary bands, That this most famous stream in bogs and sands

Should perish; and to evil and to good Be lost for ever. In our halls is hung Armoury of the invincible knights of old: We must be free or die who speak the tongue

That Shakespeare spake; the faith and morals hold

Which Milton held. In everything we are sprung

Of Earth's first blood, have titles manifold.

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#### ODE TO DUTY

This ode to Duty shows Wordsworth writing in his more massive style. The determined simplicity of his earlier poems is laid aside, and he takes the formal measure of Gray's Ode to Adversity as his model, and personifies duty in the eighteenth-century manner. He is using the idea to strengthen his own character. If that were all the poem would be mainly useful. But, as in the second, third, and especially the sixth stanzas, the poet's exhortations pass into glorious, melodious poetry, ethereal in thought.

Stern Daughter of the Voice of God!
O Duty! if that name thou love
Who art a light to guide, a rod
To check the erring, and reprove;
Thou, who art victory and law
When empty terrors overawe;
From vain temptations dost set free;
And calm'st the weary strife of frail
humanity!

There are who ask not if thine eye
Be on them; who, in love and truth,
Where no misgiving is, rely
Upon the genial sense of youth:
Glad hearts! without reproach or blot;
Who do thy work, and know it not:
Oh! if through confidence misplaced
They fail, thy saving arms, dread Power,
around them cast.

Serene will be our days and bright,
And happy will our nature be,
When love is an unerring light,
And joy its own security.
And they a blissful course may hold,
Even now, who, not unwisely bold,
Live in the spirit of this creed,
Yet seek thy firm support, according to
their need.

I, loving freedom, and untried;
No sport of every random gust,
Yet being to myself a guide,
Too blindly have reposed my trust:
And oft, when in my heart was heard
Thy timely mandate, I deferred
The task, in smoother walks to stray;
But thee I now would serve more strictly,
if I may.

Through no disturbance of my soul, Or strong compunction in me wrought, I supplicate for thy control; But in the quietness of thought: Me this unchartered freedom tires; I feel the weight of chance-desires: My hopes no more must change their name, I long for a repose that ever is the same.

Stern Lawgiver! yet thou dost wear The Godhead's most benignant grace; Nor know we anything so fair As is the smile upon thy face:
Flowers laugh before thee on their beds,
And fragrance in thy footing treads;
Thou dost preserve the stars from wrong;
And the most ancient heavens, through
Thee, are fresh and strong.

To humbler functions, awful Power!
I call thee: I myself commend
Unto thy guidance from this hour;
Oh, let my weakness have an end!
Give unto me, made lowly wise,
The spirit of self-sacrifice;
The confidence of reason give;
And in the light of truth thy bondman let me live!

#### THE ISOLATION OF GENIUS

"Uneasy lies the head that wears a crown" has its counterpart in all forms of success. Envy, detraction, ambitious rivalry, challenge those who reach life's summits. In these lines, which are taken from the third canto of Childe Harold, Lord Byron sets forth that truth in poetic imagery.

HE who ascends to mountain-tops shall find

The loftiest peaks most wrapt in clouds and snow;

He who surpasses or subdues mankind Must look down on the hate of those below;

Though high above the sun of glory glow,

And far beneath the earth and ocean spread,

Round him are icy rocks, and loudly blow

Contending tempests on his naked head, And thus reward the toils which to those summits led.

#### IN TIME OF THE BREAKING OF NATIONS

The great sensations of history come and go, but the homely toil and simple loves of men and women continue, almost unnoticed, that the Earth may bring forth her increase; and they make up in the truest sense the life of mankind. This thought is here expressed with a noble simplicity by Thomas Hardy, the greatest English writer of the 20th century.

ONLY a man harrowing clods
In a slow, silent walk
With an old horse that stumbles and nods
Half asleep as they stalk.

Only thin smoke without flame From the heaps of couch grass; Yet this will go onward the same Though dynasties pass.

Yonder a maid and her wight Come whispering by; War's annals will cloud into night Ere their story die.

## FAIR DAFFODILS'

Robert Herrick, the writer of this charming song about the daffodils, was a clergyman who lived from 1591 to 1674, and wrote an immense amount of poetry, many of his poems taking rank among the most beautiful in our language.

FAIR daffodils, we weep to see
You haste away so soon;
As yet the early-rising sun
Has not attained his noon.
Stay, stay
Until the hasting day
Has run
But to the evensong;
And, having prayed together, we

We have short time to stay, as you,
We have as short a spring;
As quick a growth to meet decay
As you, or anything.
We die,

Will go with you along.

As your hours do, and dry Away

Like to the summer's rain; Or as the pearls of morning's dew, Ne'er to be found again.

#### BEFORE ACTION

Here is one of the finest poems brought by the Great War from men who wrote what they intensely felt among its dangers. William Noe' Hodgson, the writer, was the son of the Bishop of Ipswich. He was a fine soldier and athlete at school and college. This prayer-poem, with its love of the beauty of Earth, resigned with only a sigh, was written four days before the writer fell in the advance on the Somme

By all the glories of the day
And the cool evening's benison,
By that last sunset touch that lay
Upon the hills when day was done,
By beauty lavishly outpoured
And blessings carelessly received,
By all the days that I have lived,
Make me a soldier, Lord.

By all of all man's hopes and fears, And all the wonders poets sing, The laughter of unclouded years, And every sad and lovely thing; By the romantic ages stored With high endeavour that was his, By all his mad catastrophes, Make me a man, O Lord.

I, that on my familiar hill
Saw with uncomprehending eyes
A hundred of Thy sunsets spill
Their fresh and sanguine sacrifice,
Ere the sun swings his noonday sword
Must say goodbye to all of this;
By all delights that I shall miss,
Help me to die, O Lord.

## BEYOND THE LAST LAMP

The poet's power of fixing for ever in the minds of men a picture stamped on his own mind is illustrated wonderfully in this poem by Thomas Hardy. Walking near Tooting Common, in suburban London, he twice passed a man and woman in long, earnest, and sad talk. He did not know, and we do not know, who they were, or what was their trouble, but the tragedy of their looks is passed on by his poetic art to all the world to be a lasting problem.

While rain, with eve in partnership,
Descended darkly, drip, drip, drip,
Beyond the last lone lamp I passed
Walking slowly, whispering sadly,
Two linked loiterers, wan, downcast:
Some heavy thought constrained each face,
And blinded them to time and place.

The pair seemed lovers, yet absorbed In mental scenes no longer orbed By love's young rays. Each countenance, As it slowly, as it sadly, Caught the lamplight's yellow glance, Held in suspense a misery At things which had been or might be.

When I retrod that watery way
Some hours beyond the droop of day,
Still I found pacing there the twain
Just as slowly, just as sadly,
Heedless of the night and rain.
One could but wonder who they were,
And what wild woe detained them there.

Though thirty years of blur and blot Have slid since I beheld that spot,
And saw in curious converse there
Moving slowly, moving sadly,
That mysterious tragic pair,
Its olden look may linger on—
All but the couple; they have gone.

Whither? Who knows, indeed... And yet To me, when nights are weird and wet, Without those comrades there at tryst Creeping slowly, creeping sadly, That lone lane does not exist.

There they seem brooding on their pain, And will, while such a lane remain.

#### FAITH

These verses by Fanny Kemble, the famous actress, who died in 1893. are a warning against allowing deceifful people to make us feel that everybody is deceifful.

Better trust all, and be deceived, And weep that trust and that deceiving,

Than doubt one heart that, if believed, Had blessed one's life with true believing.

O, in this mocking world too fast
The doubting fiend o'ertakes our youth!
Better be cheated to the last
Than lose the blessed hope of truth.

## POETRY

## AS WITH GLADNESS MEN OF OLD

This Epiphany hymn, pub.ished by William Chatterton Dix in 1861 was regarded by Lord Selborne, the hymn-collector as one of the finest in the English language. However that may be, it is included in most modern hymn-books. The singing of alleluias eternally must not be accepted literally, but as a symbol of worshiptu joy in God.

As with gladness men of old Did the guiding star behold; As with joy they hailed its light, Leading onward, beaming bright; So, most gracious God, may we Evermore be led to Thee.

As with joyful steps they sped To that lowly manger bed, There to bend the knee before Him whom heaven and earth adore; So may we with willing feet Ever seek Thy mercy-seat.

As they offered gifts most rare At that manger rude and bare: So may we with holy joy, Pure, and free from sin's alloy, All our costliest treasures bring, Christ, to Thee, our heavenly King.

Holy Jesu! every day
Keep us in the narrow way;
And, when earthly things are past,
Bring our ransomed souls at last
Where they need no star to guide,
Where no clouds Thy glory hide.

In the heavenly country bright Need they no created light; Thou its Light, its Joy, its Crown, Thou its Sun, which goes not down: There for ever may we sing Alleluias to our King!

## WYNKEN, BLYNKEN, AND NOD

Among the choicest of the poets who have written for children is the American, Eugene Field, and this is often considered the best or all his poems. The explanation of it comes in the last verse, which tells us plainly who Wynken, Blynken, and Nod are, and how they went off together into the delightful land of childish dreams.

WYNKEN, Blynken, and Nod one night Sailed off in a wooden shoe, Sailed on a river of crystal light Into a sea of dew.

"Where are you going, and what do you wish?"

The old Moon asked the three.
"We have come to fish for the herring fish
That live in this beautiful sea;
Nets of silver and gold have we,"
Said Wynken,
Blynken, and Nod.

The old Moon laughed and sang a song
As they rocked in the wooden shoe;
And the wind that sped them all night
long
Ruffled the waves of dew;

The little stars were the herring fish That lived in that beautiful sea.

'Now cast your nets wherever you wish,
But never afeared are we!"
So cried the stars to the fishermen three,
Wynken,
Blynken, and Nod.

All night long their nets they threw
For the fish in the twinkling foam,
Then down from the sky came the wooden
shoe

Bringing the fishermen home;
'Twas all so pretty a sail, it seemed
As if it could not be;

And some folk thought 'twas a dream they'd dreamed

Of sailing that beautiful sea;
But I shall name you the fishermen
three,

Wynken, Blynken, and Nod.

Wynken and Blynken are two little eyes, And Nod is a little head; And the wooden shoe that sailed the skies

Is a wee one's trundle-bed.

So shut your eyes while Mother sings
Of wonderful sights that be,
And you shall see the beautiful things
As you rock in the misty sea

Where the old shoe rocked the fishermen three,

Wynken, Blynken, and Nod.

#### THE SINGER

This is how John Addington Symonds sees the poet—not necessarily the individual man but the poet who reappears in mankind and, in age after age, reinterprets afresh to the race the truths that purify life and make it beautiful.

He fills the world with his singing,
High notes of the heavenly morn,
For ever and ever ringing
As age after age is born.

And then he is still, and we know not Whither his thoughts have fled; Only the clear notes flow not, And we say the singer is dead.

But the nightingales that he cherished,
They carol and cannot die;
Though the man whom we loved hath
perished,
His melody throbs for aye.

## KEEL ROW

This is one of the North Country sea-songs that have grown up nobody knows how, so that both words and music are inherited from past generations without the authorship being known. The words in these verses move to the sound of the oars in the rowlocks of a moving boat.

As I came thro' Sandgate,
Thro' Sandgate, thro' Sandgate,
As I came thro' Sandgate
I heard a lassie sing.
O weel may the keel row,
The keel row, the keel row,

O weel may the keel row, That my laddie's in.

O wha's like my Johnnie,
Sae leith, sae blythe, sae bonny?
He's foremost among the mony
Keel lads o' coaly Tyne;
He'll set and row so tightly,
Or in the dance, so sprightly,
He'll cut and shuffle sightly;
'Tis true, were he not mine

He wears a blue bonnet,
Blue bonnet, blue bonnet;
He wears a blue bonnet,
And a dimple in his chin.
And weel may the keel row,
The keel row, the keel row,
And weel may the keel row,
That my laddie's in.

## WHY I ABANDONED YOU

This remarkable sonnet was written at the front in the Great War by Tom Kettle. a brilliant Irish Nationalist Member of Parliament, and sent home to his little daughter—a baby. The writer was killed shortly afterwards. It will be seen that he expects to die. So it is a voice from the grave, affirming the purity of motive which took a brave man to the war.

In wiser days, my darling rosebud, blown To beauty proud as was your mother's prime,

In that desired, delayed, incredible time, You'll ask why I abandoned you, my own, And the dear heart that was your baby throne,

To dice with death! And, oh, they'll give you rhyme

And reason; some will call the thing sublime,

And some decry it in a knowing tone. So here, while the mad guns curse over-

And tired men sigh, with mud for couch and floor,

Know that we fools, now with the foolish

Died not for flag, nor king, nor emperor, But for a dream born in a herdsman's shed, And for the secret Scripture of the poor.

#### THE TRUE MAN

This poem by Sir Lewis Morris a popular poet of the nineteenth century, strikes a note that is strong and true.

TAKE thou no thought for aught save Right and Truth,

Life holds for finer souls no equal prize; Honours and wealth are baubles to the wise.

And pleasure flies on swifter wing than youth.

If in thy heart thou bearest seeds of hell, Though all men smile, yet what shall be thy gain?

Though all men frown, if Truth and Right remain,

Take then no thought for aught; for it is well.

Take then no thought for aught; nor deem it shame

To lag behind while knaves and dullards rise;

Thy soul asks higher guerdon, purer tame, Than to loom large and grand in vulgar eves.

Though thou shouldst live thy life in vile estate,

Silent, yet knowing that deep within thy breast

Unkindled sparks of genius lie repressed, Greater is he that is, than seemeth, great

Take thou no care for aught save Truth and Right;

Content, if such thy fate, to die obscure; Wealth palls, and honours; fame may not endure.

And lofticr souls soon weary of delight.

Keep innocence; be all a true man ought;

Let neither pleasure tempt nor pains appal:

Who hath this, he hath all things, having naught,

Who hath it not hath nothing, having all.

THE ROUND OF THE YEAR
In three short verses Coventry Patmore has given poetical
hints of the seasonal changes throughout the year.

The crocus, while the days are dark, Unfolds its saffron sheen; At April's touch the crudest bark Discovers gems of green.

Then sleep the seasons, full of might;
While slowly swells the pod
And rounds the peach, and in the night
The mushroom bursts the sod.

The winter falls; the frozen rut
Is bound with silver bars;
The snow-drift heaps against the hut,
And night is pierced with stars.

## THE GLOVE AND THE LIONS

Leigh Hunt, who was born in 1784 and died in 1859, was one of the best known writers of his time, chiefly in prose, but also as a poet. He was not one of the studious and exact writers of ambitious verse, but he could tell a story brightly and effectively, as this example of his art shows. Other poets have told the story of the lady who was willing to sacrifice her lover's life to her vanity, but none has brought out its points more swiftly and clearly.

KING FRANCIS was a hearty king, and loved a royal sport,

And one day, as his lions fought, sat looking on the court;

The nobles filled the benches, and the ladies in their pride,

And 'mongst them sat the Count de Lorge, with one for whom he sighed:

And truly 'twas a gallant thing to see that crowning show,

Valour and love, and a king above, and the royal beasts below.

Ramped and roared the lions, with horrid, laughing jaws;

They bit, they glared, gave blows like beams, a wind went with their paws;

With wallowing might and stifled roar they rolled one on another,

Till all the pit with sand and mane was in a thund'rous smother;

The bloody foam above the bars came whisking through the air;

Said Francis then, "Faith, gentlemen, we're better here than there."

De Lorge's love o'erheard the King, a beauteous, lively dame,

With smiling lips and sharp, bright eyes, which always seemed the same:

She thought, "The count, my lover, is brave as brave can be;

He surely would do wondrous things to show his love of me!

King, ladies, lovers, all look on; the occasion is divine;

I'll drop my glove to prove his love; great glory will be mine!"

She dropped her glove to prove his love, then looked at him and smiled.

He bowed, and in a moment leaped among the lions wild;

The leap was quick, return was quick; he has regained his place,

Then threw the glove, but not with love, right in the lady's face.

"In truth," said Francis, "rightly done!" and he rose from where he sat.

"No love," quoth he, "but vanity. sets love a task like that."

#### FOR THE FALLEN

The Great War, with its terrible slaughter of young men, many of them the finest spirits of their generation, deeply moved all sympathetic and thoughtful men and women, and many poets tried to express the national feeling. It was felt widely that this poem in a wonderful degree put into a musical measure the pride and sorrow and remembrance of the country. The writer Laurence Binyon, is, besides being a poet, the author of excellent books on art, and one of the Keepers of Oriental prints in the British Museum. The poem was written for The Times.

WITH proud thanksgiving, a mother for her children,

England mourns for her dead across the sea.

Flesh of her flesh they were, spirit of her spirit,

Fallen in the cause of the free.

Solemn the drums thrill: Death august and royal

Sings sorrow up into immortal spheres. There is music in the midst of desolation And a glory that shines upon our tears.

They went with songs to the battle, they were young,

Straight of limb, true of eye, steady and aglow.

They were staunch to the end against odds uncounted,
They fell with their faces to the foe.

They shall grow not old, as we that are left grow old:

Age shall not weary them, nor the years condemn.

At the going down of the sun and in the morning

We will remember them.

They mingle not with their laughing comrades again;

They sit no more at familiar tables at home;

They have no lot in our labour of the day-time:

They sleep beyond England's foam.

But where our desires are and our hopes profound,

Felt as a well-spring that is hidden from sight,

To the innermost heart of their own land they are known

As the stars are known to the Night.

As the stars that shall be bright when we are dust,

Moving in marches upon the heavenly plain,

As the stars that are starry in the time of our darkness,

To the end, to the end, they remain.

### HIS PILLAR

Robert 'Herrick's poetry was often light as thistledown, but he knew that, by its grace, it was likely to preserve his name in human memory, as indeed it has done. So he lets us know that in these verses, simple though they may be, he expects to leave for himself a lasting memorial.

ONLY a little more
I have to write,
Then I'll give o'er,
And bid the world good-night.

'Tis but a flying minute That I must stay, Or linger in it; And then I must away.

O Time, that cut'st down all, And scarce leav'st here Memorial Of any men that were;

How many lie forgot In vaults beneath, And piecemeal rot

And piecemeal rot Without a fame in death!

Behold this living stone
I rear for me,
Ne'er to be thrown
Down, envious Time, by thee.

Pillars let some set up, If so they please; Here is my hope, And my Pyramides.

## NAPOLEON'S FAREWELL

Lord Byron put these words into the mouth of Napoleon when he surrendered and was sent into exile. They do not represent the true relations between Napoleon and France, for Napoleon was the betrayer of liberty in that great country; but they are the kind of thoughts which Napoleon, dazzled by the idea of personal glory, probably cherished

FAREWELL to the land where the gloom of my glory

Arose and o'ershadowed the earth with her name;

She abandons me now, but the page of her story,

The brightest or blackest, is filled with my fame.

I have warred with a world which vanquished me only

When the meteor of conquest allured me too far;

I have coped with the nations which dread me thus lonely,

The last single captive to millions in war.

Farewell to thee, France! when thy diadem crowned me

I made thee the gem and the wonder of earth;

But thy weakness decrees I should leave as I found thee,

Decayed in thy glory, and sunk in thy worth.

Oh, for the veteran hearts that were wasted In strife with the storm, when their battles were won;

Then the eagle, whose gaze in that moment was blasted.

Had still soared with eyes fixed on victory's sun!

Farewell to thee, France! but when Liberty rallies

Once more in thy regions, remember me then:

The violet still grow in the depth of thy valleys:

Though withered, thy tear will unfold it again.

Yet, yet, I may baffle the hosts that surround us.

And yet may thy heart leap awake to my voice;

There are links which must break in the chain that has bound us,

Then turn thee and call on the Chief of thy choice!

#### THE WORLD IS TOO MUCH WITH US

This glorious sonnet, calling on us to appreciate the romantic loveliness of Nature, was written by Wordsworth in 1806. But is it true that the Greek, with his mythological poetry of Nature, loved the outdoor world and everything belonging to it more than we love it? Certainly no Greek drew more deeply than Wordsworth on the riches of Nature. Perhaps the verse was truer in Wordsworth's day than in ours, except that the first two lines may be always true.

The world is too much with us; late

and soon,
Getting and spending, we lay waste
our powers:

Little we see in Nature that is ours;

We have given our hearts away, a sordid boon!

This sea that bares her bosom to the moon;

The winds that will be howling at all hours,

And are up-gathered now like sleeping flowers;

For this, for everything, we are out of tune;

It moves us not. Great God! I'd rather be A Pagan suckled in a creed outworn;

So might I, standing on this pleasant lea, Have glimpses that would make me less forlorn;

Have sight of Proteus rising from the sea; Or hear old Triton blow his wreathed horn.

## MY OLD FRIEND

It is curious that poetry has not provided many close and intimate studies of friendship. The romances of friendship have been told, but not much has been said about the ordinary effects of a friendly presence. This charming study is by that delightful Cambridge don Dr. Arthur Christopher Benson, who was gracetul in prose, verse, and triendship.

It seems the world was always bright With some divine unclouded weather When we, with hearts and footsteps light, By lawn and river walked together:

There was no talk of me and you,
Of theories with facts to bound them,
We were content to be and do,
And take our fortunes as we found them.

We spoke no wistful words of love, No hint of sympathy and dearness, Only around, beneath, above, There ran a swift and subtle nearness.

Each immost thought was known to each By some impetuous divination: We found no need of flattering speech, Content with silent admiration.

I think I never touched your hand, I took no heed of face or feature, Only, I thought on sea or land Was never such a gracious creature.

It seems I was not hard to please,
Where'er you led I needs must follow;
For strength you were my Hercules,
For wit and lustre my Apollo.

The years flew onward: stroke by stroke
They clashed from the impartial steeple,
And we appear to other folk
A pair of ordinary people.

One word, old friend: though fortune flies, If hope should fail, till death shall sever, In one dim pair of faithful eyes
You seem as bright, as brave as ever.

#### ODE TO THE WEST WIND

In this ode Shelley reaches the summit of his achievement as a poet. It was written in 1819, near Florence, when the west wind was collecting vapours for the autumnal rains. The poet, now 27, and with less than three years more to live, had run through a wildly impractical youth, and was beginning to feel his responsibility to the world as a poet, and this consciousness is here expressed with a magnificent poetic fervour. Two stanzas of the poem are here omitted.

WILD West Wind, thou breath of Autumn's being,

Thou, from whose unseen presence the leaves dead

Are driven, like ghosts from an enchanter fleeing.

Yellow, and black, and pale, and hectic red. Pestilence-stricken multitudes: O thou, Who chariotest to their dark wintry bed

The wingèd seeds, where they lie cold and low.

Each like a corpse within its grave, until Thine azure sister of the Spring shall blow

Her clarion o'er the dreaming earth, and fill (Driving sweet buds like flocks to feed in air)

With living hues and odours plain and hill:

Wild Spirit, which art moving everywhere; Destroyer and preserver; hear, oh, hear!

If I were a dead leaf thou mightest bear;
If I were a swift cloud to fly with thee;
A wave to pant beneath thy power, and share

The impulse of thy strength, only less free Than thou, O uncontrollable! If even I were as in my boyhood, and could be

The comrade of thy wanderings over Heaven,

As then, when to outstrip thy skiey speed Scarce seemed a vision; I would ne'er have striven

As thus with thee in prayer in my sore need.

Oh, lift me as a wave, a leaf, a cloud! I fall upon the thorns of life! I bleed!.

A heavy weight of hours has chained and bowed

One too like thee: tameless, and swift, and proud.

Make me thy lyre, even as the forest is: What if my leaves are falling like its own! The tumult of thy mighty harmonies

Will take from both a deep, autumnal tone, Sweet though in sadness. Be thou, Spirit fierce,

My spirit! Be thou me, impetuous one!

Drive my dead thoughts over the universe Like withered leaves to quicken a new birth!

And, by the incantation of this verse,

Scatter, as from an unextinguished hearth Ashes and sparks, my words among mankind!

Be through my lips to unawakened earth

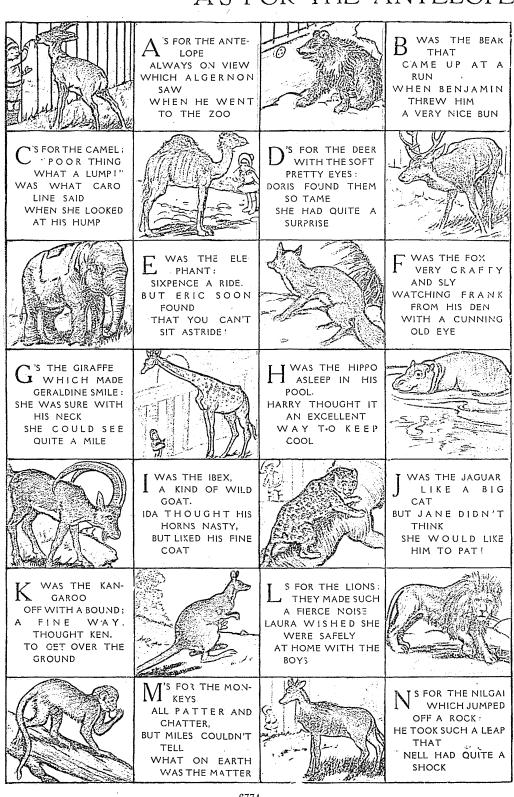
The trumpet of a prophecy! O, Wind, If Winter comes, can Spring be far behind?

## PIGGY WIGGY WEE





## A'S FOR THE ANTELOPE



# WE SAW AT THE ZOO

S FOR THE OSTRICH A WIS E-LOOKING BIRD BUT OLGA REMEMBERED THE TALES SHE HAD HEARD		P'S FOR THE PARROT THAT HAD LOTS TO SAY AND TRIED TO PECK PAUL AS HE PASSED BY THAT WAY	
	O'S FOR THE QUAGGA WHICH QUENTIN FOUND TAME: HE IS QUITE LIKE A ZEBRA WITH STRIPES AND A MANE		R IS THE RHINO, A FIERCE-LOOK- ING BEAST: ROSIE WATCHED HIM WITH AWE IN THE MIDST OF A FEAST
S IS THE SNAKE WHICH SUZANNE FOUND ASLEEP: HE WAS SHINY AND SLIMY AND MADE HER FLESH CREEP		T S FOR THE TIGERS THAT GAVE TIM A FRIGHT: HE WAS HORRIBLY SCARED LES: THEY GOT OUT AT NIGHT	
	FOR U (THAT'S THE UNICORN) NOBODY LOOKS: AS UNA CAN TELL YOU, HE'S ONLY IN BOOKS		V S FOR THE VULTURE. A BIG BIRD OF PREY. VERONICASAW HIM— AND SOON RAN AWAY!
W S FOR THE WOLF LYING FLAT ON THE GROUND THOUGH WHEN WAL TER CAME NEAR HE WAS UP WITH A BOUND	EARLESTAR	JUST LOOKS ON AND HAS NOTH- ING TO DO THERE'S NO CREATURE THAT CLAIMS HIM THROUGHOUT THE WHOLE ZOO	
	Y IS THE YAK: HE'S WORTHY OF NOTE; YVONNE WAS AMAZED AT HIS LONG SHAGGY COAT		Z'S FOR THE ZEBRA THAT KEPT ZOE BUSY SHE COUNTED HIS STRIPES TILL SHE FELT SHE WAS DIZZY

# LITTLE BLACKEY-TOPS



#### **POETRY**

## LITTLE MISTRESS MINE

The poet's title for these verses is Villanelle. A villanelle is an artificial form of French poetry with only two rhymes. It consists of nineteen lines, five three-line verses and one four-line verse. One line of the first verse must be repeated in each of the next four verses, and the last verse must repeat two lines of the first verse. Its form is here illustrated perfectly by Edmund Gosse in this villanelle from a dying sparrow to its mistress, who is asked to dig its grave.

LITTLE mistress mine, good-bye!
I have been your sparrow true;
Dig my grave, for I must die.

Waste no tear and heave no sigh; Life should still be blithe for you; Little mistress mine, good-bye!

In your garden let me lie, Underneath the pointed yew Dig my grave, for I must die.

We have loved the quiet sky
With its tender arch of blue;
Little mistress mine, good-bye!

That I still may feel you nigh, In your virgin bosom, too, Dig my grave, for I must die.

Let our garden friends that fly Be the mourners, fit and few. Little mistress mine, good-bye! Dig my grave, for I must die.

## THE THOUGHT

Here is one of the deeper poems of William Brighty Rands. The Thought of Day is what we think of this life. The Thought of Night is what we think of the life beyond

Into the skies one summer's day
I sent a little Thought away,
Up to where, in the blue round,
The sun sat shining without sound.

Then my Thought came back to me: Little Thought, what did you see In the regions whence you come? And when I spoke my Thought was dumb.

But she breathed of what was there In the pure, bright upper air; And, because my Thought so shone, I knew she had been shone upon.

Next by night a Thought I sent Up into the firmament, When the eager stars were out, And the still moon shone about.

And my Thought went past the moon, In between the stars, but soon Held her breath and durst not stir For the fear that covered her; Then she thought, in this demur:

"Dare I look beneath the shade, Into where the worlds are made; Where the suns and stars are wrought? Shall I meet another Thought?

"Will that other Thought have wings? Shall I meet strange, heavenly things? Thought of Thoughts, and Light of Lights, Breath of Breaths, and Night of Nights?"

Then my Thought began to hark In the illuminated dark, Till the silence, over, under, Made her heart beat more than thunder.

And my Thought came trembling back, But with something on her track, And with something at her side; Nor till she has lived and died, Lived and died, and lived again, Will that awful thing seem plain.

#### THE VOICELESS

Thomas Gray surmised, in his immortal poem on Stoke Poges churchyard, that some mute, inglorious Milton might perchance rest there. In this poem Oliver Wendell Holmes develops this thought by supposing that many have the experiences that poets express in song. The common failure in expression saddens him. But is there not all the poetry in the world available for those who are themselves voiceless? All the poetry in the world is ours.

WE count the broken lyres that rest
Where the sweet, wailing singers
slumber,

But o'er their silent sister's breast
The wild flowers who will stoop to
number?

A few can touch the magic string, And noisy Fame is proud to win them: Alas for those that never sing, But die with all their music in them:

Nay, grieve not for the dead alone Whose song has told their hearts' sad story,

Weep for the voiceless, who have known The cross without the crown of glory! Not where Leucadian breezes sweep O'er Sappho's memory-haunted billow,

But where the glistening night-dews weep On nameless sorrow's churchyard pillow.

O hearts that break and give no sign, Save whitening lip and fading tresses. Till Death pours out his cordial wine Slow-dropped from Misery's crushing presses;

If singing breath or echoing chord
To every hidden pang were given,
What endless melodies were poured,
As sad as earth, as sweet as heaven!

#### BOG LOVE

This grimly realistic picture of love on the commonest level is by Shane Leslie, one of the young poets of our time.

Wee Shemus was a misdropt man Without a shoulder to his back; He had the way to lift a rann And throttled rabbits in a sack.

And red-haired Mary whom he wed Brought him but thirty shillings told; She had but one eye in her head, But Shemus counted it for gold.

The two went singing in the hay
Or kissing underneath the sloes,
And where they chanced to pass the day
There was no need to scare the crows.

But now with Mary waked and laid As decent as she lived and died, Poor Shemus went to buy a spade To dig himself a place beside.

#### TO EXILES

Perhaps no country has sent out so large a proportion of its population to colonise the world as Scotland has, and no country calls her children back at last with a more appealing mutual love. In this poem Neil Munro pictures vividly the Scotland which rears hardy men for the world's work, and calls them home to her stimulating strength and beauty when they have succeeded. Though known most widely as a graphic novelist, Neil Munro is also a true poet

Are you not weary in your distant places,

Far, far from Scotland of the mist and storm,

In drowsy airs, the sun-smite on your faces,

The days so long and warm?

When all around you lie the strange fields sleeping,

The dreary woods where no fond memories roam,

Do not your sad hearts over seas come leaping

To the highlands and the lowlands of your Home?

Wild cries the Winter, loud through all our valleys

The midnights roar, the grey noons echo back:

About the scalloped coasts the eager galleys

Beat for kind harbours from horizons black;

We tread the miry roads, the rain-drenched heather,

We are the men, we battle, we endure! God's pity for you people in your weather Of swooning winds, calm seas, and skies demure!

Wild cries the Winter, and we walk songhaunted

Over the hills and by the thundering falls,

Or where the dirge of a brave past is chaunted

In dolorous dusk by immemorial walls. Though rains may beat us and the great mists blind us,

And lightning rend the pine tree on the hill.

Yet are we strong, yet shall the morning find us

Children of tempest all unshaken still.

We wander where the little grey towns cluster

Deep in the hills, or selvedging the sea, By farm lands lone, by woods where wildfowl muster

To shelter from the day's inclemency; And night will come, and then far through the darkling

A light will shine out in the sounding glen,

And it will mind us of some fond eye's sparkling,

And we'll be happy then.

Let torrents pour then, let the great winds rally,

Snow-silence fall or lightning blast the pine;

That light of Home shines warmly in the valley,

And, exiled son of Scotland, it is thine. Far have you wandered over seas of longing,

And now you drowse, and now you well may weep,

When all the recollections come a-thronging Of this old country where your fathers sleep

They sleep, but still the hearth is warmly glowing

While the wild Winter blusters round their land;

That light of Home, the wind so bitter blowing—

Look, look and listen, do you understand?

Love, strength, and tempest—oh, come back and share them!

Here is the cottage, here the open door; Fond are our hearts although we do not bare them;

They're yours, and you are ours for evermore.

### LITTLE VERSES FOR VERY LITTLE PEOPLE

Hey diddle, dinkety, poppety, pet,
The merchants of London they
wear scarlet;

Silk in the collar and gold in the hem, So merrily march the merchantmen.



LITTLE Robin Redbreast
Sat upon a rail;
Niddle naddle went his head,
Wiggle waggle went his tail.

ONCE I saw a little bird Come hop, hop, hop; And I cried, Little bird, Will you stop, stop, stop? I was going to the window To say How do you do? But he shook his little tail, And away he flew.

Cuckoo, cuckoo, cherry tree, Catch a bird and give it me; Let the tree be high or low, Let it hail or rain or snow.

OATS and beans and barley grow
For you and me, as all of us know.
Thus the farmer sows his seeds,
Thus he stands and takes his ease;
Stamps his foot and slaps his hand,
And turns him round to view his land.



O RARE Harry Parry,
When will you marry?
When apples and pears are ripe.
I'll come to your wedding
Without any bidding,
And dance and sing all night.

Pir, pat, well-a-day, Little Robin flew away; Where can little Robin be? Gone into the cherry tree.

OMMY TROT, a man of law, Sold his bed and lay upon straw;

Sold the straw and slept on grass, To buy his wife a looking-glass.

If I had money I'd buy a clown;
If I had a horse I'd ride to town;
If I had a ship I'd Westward Ho,
And if I was sick I wouldn't go.

If Candlemas Day be bright and fair Winter will have another flight:
If on Candlemas Day be shower and rain Winter is gone and will not come again.

A, B, C, and D,
Pray, playmates, agree.
E, F, and G,
Well, so it shall be.
J, K, and L,
In peace we will dwell.
M, N, and O,
To play let us go.
P, Q, R, and S,
Love may we possess.
W, X, and Y
Will not quarrel or die.
Z and Ampersand
Go to school at command.

LITTLE Betty Blue
Lost a holiday shoe;
What can little Betty do?
Give her another
To match the other,
And then she may walk out in two.

RIDE, baby, ride!
Pretty baby shall ride,
And have a little puppy-dog tied to her side,
And a little pussy-cat tied to the other,
And away she shall ride to see her grandmother.

THERE was an old woman sat spinning, And that's the first beginning; She had a calf, And that's half; She took it by the tail And threw it over a wall,

O<sup>NE</sup>, two, three, I love coffee, Billy loves tea, How good you be. One, two, three, I love coffee And Billy loves tea

And that's all.

ELIZABETH, Elspeth, Betsy, and Bess
They all went together to seek a
bird's nest;
They found a bird's nest with five eyes in

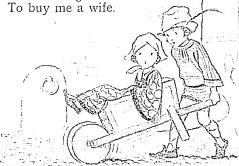
They found a bird's nest with five eggs in; They all took one and left four in.



#### NURSERY RHYMES

When I was a bachelor
I lived by myself;
And all the bread and cheese I got
I put upon the shelf.

The rats and the mice
They made such a strife
I was forced to go to London
To buy me a wife.



The streets were so bad,
And the lanes were so narrow,
I was forced to bring my wife home
In a wheelbarrow.

The wheelbarrow broke, And my wife had a fall. Down came wheelbarrow, Little wife, and all.

AWAKE, arise, and rub your eyes,
And hear what time of day;
And when you've done just move your tongue,

And see what you can say.

SNAIL, snail, come out of your hole, Or else I will make you as black as a coal.

To make your candles last for aye You maids and wives give ear-o, To put them out's the only way, Says honest John Boldero.

Our saucy boy Dick Had a nice little stick, Cut from a hawthorn tree; And with this pretty stick He thought he could beat A boy much bigger than he.

But the boy turned round And hit him right sound, Which did so frighten poor Dick That without more delay He ran quite away, And over a hedge he jumped quick. I HAD a little boy, and his name was Blue Bell.

I gave him some work and he did it very well;

I sent him upstairs to pick up a pin, He stepped in the coal scuttle up to the chin;

I sent him to the garden to pick some sage, He tumbled down and fell in a rage.

THERE was a little man, and he had nought,
And robbers came to rob him;

He crept up to the chimney top,
And then they thought they had him
But he got down on t'other side,

But he got down on t'other side,
And then they could not find him;
He ran fourteen miles in fifteen days,
And never looked behind him.

Good little boys should never say 'I will' and 'Give me these': Oh, no! that never is the way, But' Mother, if you please.'

And 'If you please' to Sister Anne Good boys to say are ready; And 'Yes, sir,' to a gentleman, And 'Yes, ma'am' to a lady.

I HAVE a little hen, the prettiest ever seen,

She washed me the dishes and kept the house clean;

She went to the mill to fetch me some flour,

She brought it home in less than an hour: She baked me some bread, brought milk in a pail,

And sat by the fire and told me a tale.



A s Tommy Snooks and Bessy Brooks Were walking out one Sunday, Said Tommy Snooks to Bessy Brooks, Tomorrow will be Monday.

## Imperishable Thoughts of Men Enshrined in the Books of the World

Bunyan's Masterpiece

NO book except the Bible has had greater influence for good on the minds of men than The Pılgrim's Progress. Written in simple, straightforward English, by a plain, straightforward man, who, from being a poor tinker, became a powerful preacher of God's message to mankind, this immortal story is likely to be read as long as our literature endures. The story is told as an allegory, illustrating the trials that beset a Christian on his way through life, but is better than most allegories, because the characters are so human that we are instantly interested in each for his own sake, as well as anxious to know what happened to them all. John Bunyan, the author, was born at Elstow, near Bedford, in 1628, and died in London in 1688. He was imprisoned for twelve years for preaching without the sanction of the Church, and while in Bedford prison he wrote the first part of his immortal story. Here we take from it certain passages which tell the story in Bunyan's own words.

### THE PILGRIM'S PROGRESS

As I walked through the wilderness of this world I lighted on a certain place where was a Den, and I laid me down in that place to sleep, and as I slept I dreamed a dream.

I dreamed, and behold I saw a man clothed with rags, standing in a certain place, with his face from his own house, a book in his hand, and a great burden upon his back. I looked, and saw him open the book and read therein; and as he read he wept and trembled, and at length brake out with a lamentable cry, saying: "What shall I do?"

In this plight he went home and told his wife that he was informed that their city would be burned with fire from heaven, in which fearful overthrow himself, his wife, and his sweet babes, would miserably come to ruin, except some way of escape could be found. His relations tried, without avail, to rid him of his fears.

Now, I saw upon a time when Christian (for this was the man's name) was walking in the fields that he was reading in his book; and as he read he burst out as before, crying: "What shall I do to be saved?" I looked then and saw a man named Evangelist coming to him, who asked: "Wherefore dost thou cry?"

When he had answered, Evangelist said: "If this be thy condition, why standest thou still?"

"Because I know not whither to go," he answered.

Then Evangelist gave him a parchment roll, and there was written thereon: "Flee from the wrath to come." The man read it, and, looking upon Evangelist carefully, said: "Whither must I fly?"

Then said Evangelist, pointing with his finger over a very wide field: "Do you see yonder wicket-gate?" The man said: "No." Then said the other: "Do you see yonder shining light?" He said: "I think I do." Then said Evangelist: "Keep that light in your eye and go up directly thereto, so shalt thou see the gate, at which, when thou knockest, it shall be told thee what thou shalt do."

So I saw in my dream that the man began to run. Now, he had not run far from his own door, but his wife and children and neighbours, perceiving it, cried after him to return. But the man ran towards the middle of the plain.

Two-of his neighbours, Obstinate and Pliable, resolved to fetch him back by force. When they came up with him he told them that if they died in the City of Destruction, where he and they were born, they would sink lower than the grave.

They talked together, and Christian asked them to read in his book. Obstinate cried: "Away with your book! Will you go back with us or no?"

"No, not I," said Christian, "because I have laid my hand to the plough."

Obstinate then went back, but Pliable offered to go with Christian, and even urged him to mend his pace. But Christian had a burden on his back, and Pliable was unencumbered.

Now, I saw in my dream that, just as they had ended this talk, they drew very near to a very miry slough, and being heedless, they did both fall suddenly into the bog. The name of the slough was Despond. And Christian, because of the burden that was on his back, began to sink in the mire. Then said Pliable: "Ah, neighbour Christian, where are you now?"

"Truly," said Christian, "I do not know."

At this Pliable began to be offended, and angrily said to his fellow: this the happiness of which you have told me all this while? May I get out again with my life, you shall possess the brave country alone for me.'

And with that he gave a desperate struggle and got out of the mire on that side of the slough which was next to his own house, and Christian saw him no more.

Christian, left to tumble in the Slough of Despond alone, endeavoured to struggle to that side that was next to the wicketgate; which he did, but could not get out because of the burden that was upon his back. But I beheld in my dream that a man came to him whose name was Help, and set him upon sound ground.

Now, as Christian was walking solitarily by himself, he was met by Mr. Worldly Wiseman, who advised him that he could get rid of his burden much more easily by applying to one Legality, whose house was on a high hill he pointed out. So Christian turned out of his way to go to Mr. Legality's. But the hill seemed so high, and that side of it which was next to the wayside did hang so much over, that Christian was afraid to venture farther. His burden seemed heavier, and flashes of fire came out of the hill that made him afraid that he should be burned.

In this way he was found by Evangelist, and once more set on the right path; and so, in process of time, he got up to the wicket-gate. The gate was opened to him by Goodwill, who, after hearing his

story, asked him to look before him at a narrow way.

"That," said Goodwill, "is the way

thou must go."

"But," said Christian, "are there ne turnings or windings by which a stranger may lose his way?"

"Yes," said the other, "there are many ways butt down on this, and they are crooked and wide. But thus thou mayest know the right from the wrong, the right only being straight and narrow.'

Then Christian went on till he came to the house of the Interpreter. After he had knocked and the door had been opened, I saw in my dream that the Interpreter showed him a picture of the man whom the Lord of the place whither he was going had authorised to be his guide, and other things such as would help him in his journey. When the Interpreter had shown him many strange and wonderful sights and expounded their meaning, and offered him good counsel he gave him his blessing, and Christian went on his way.

Now, I saw that the highway up which he had to go was fenced on either side with a wall, called Salvation. Up this way, therefore, did burdened Christian run, but not without great difficulty, because of the load on his back. He ran till he came to a place somewhat ascending, and upon that place stood a cross, and a little below, in the bottom, a sepulchre. So I saw in my dream, just as Christian came up with the cross, his burden loosed from off his shoulders, and fell from off his back, and began to tumble, and so continued to do till it came to the mouth of the sepulchre, where it fell in and Christian saw it no more.

Then was Christian glad and lightsome, and stood awhile to look and wonder, till the springs that were in his head sent the waters down his cheeks. As he stood looking and weeping for gladness, behold three Shining Ones came to him and saluted him with: "Peace be to thee." The first said to him: "Thy sins be forgiven thee "; the second stripped hin of his rags, and clothed him with change of raiment; the third also set a mark on his forehead, and gave him a roll with a seal upon it, bidding him look on it as he ran, and that he should give it in at the Celestial Gate. So they went their way, and Christian gave three leaps for joy and went on, singing.

### CHRISTIAN'S FIGHT WITH APOLLYON

While resting on the hill called Difficulty Christian fell into a deep sleep. And as he slept his roll dropped from his hand. At the summit of the hill he met two men, named Timorous and Mistrust. They said they were returning, because the farther they went the more dangers they met with.

This caused Christian to feel in his bosom for his roll, that he might read therein and be comforted. But, finding it not, he went down the hill again to the arbour, where he had slept. Who can tell how joyful this man was when he had gotten his roll again, which was to be his pass into the Celestial City? How nimbly did he now go up the hill!

But before he got up, the sun went down upon him and he thought of the lions in the way, of which Timorous and Mistrust had told him. But while he was blaming himself for sleeping, he lifted up his eyes and saw before him a stately palace, the name of which was Beautiful. So he made haste that, if possible, he might get lodging there.

Before he had gone far he entered a very narrow passage, about a furlong off the porter's lodge, and espied two ions in the way. The lions were chained, but he saw not the chains, and was afraid. But the porter, whose name was Watchful, called out to him to keep in the midst of the path, if his faith was strong enough. This Christian did, and so entered the Palace Beautiful, which was built for the relief and security of pilgrims.

There came forth to meet him a beautiful damsel called Discretion, who, on learning his story, called out Piety, Prudence, and Charity. Thus was Christian welcomed into the house.

· Here he had much profitable discourse, such as he had had at the Interpreter's house. After supper, Christian was given a large upper chamber, and here he slept till the break of day.

Before he left this place, the rarities of which were shown to him, he was taken up on to the roof, whence he beheld at a great distance a most pleasant mountainous country. The mountains were the Delectable Mountains, and the country was Emmanuel's Land, from which he was told he would be able to see the gate of the Celestial City.

Christian was now anxious to be setting forward, but before letting him go his hosts took him into the armoury, where they harnessed him from head to foot, except upon his back, with what was proof against attack, lest perhaps he should meet with assaults on the way. At the gate he learned from the porter that one Faithful, a fellow-townsman, had passed that way. Oh! said Christian, I know him; he is my near neighbour. How far do you think he may be before? The porter answered that he must have got by this time below the hill.

Then he began to go forward, but Discretion, Piety, Charity, and Prudence accompanied him to the foot of the hill, which led to the Valley of Humiliation. Christian went down very warily, for the hill was dangerous, yet he had a slip or two. When all were at the foot of the hill, his good companions gave Christian a loaf of bread, a bottle of wine, and a cluster of raisins; and then he went on his way. But poor Christian had gone only a little way in the valley before he espied a foul fiend, hideous to behold, coming to meet him, and dispute his passage.

The name of the fiend was Apollyon. Christian was at first afraid, and began to cast in his mind whether to go back or stand his ground. But as he had no armour on his back, he thought that to turn might give the enemy the greater advantage to pierce him with his darts. So he went on, and Apollyon, when he refused to go back, straddled quite across the path and hurled a flaming dart at Christian's breast. Thus began a sore combat that lasted for over half a day.

When Christian had been wounded in head, hand, and foot, and was almost spent, Apollyon came to close quarters, and, wrestling with him, gave him a dreadful fall, so that his sword flew out of his hand. Then said Apollyon: "I am sure of thee now." And with that he almost pressed him to death. But while Apollyon was fetching of his last blow, Christian nimbly stretched out his hand and, regaining his sword, gave the fiend such a thrust that he spread his dragon's wings and sped him away. Then there came to Christian a hand with some of the leaves of the Tree of Life, which Christian took, and applied to his wounds, and was healed immediately. He also sat down, and, after being refreshed, resumed his journey, with his sword drawn in his hand, but he saw no more of Apollyon all through the valley.



Now, at the end of the Valley of Humiliation was another, called the Valley of the Shadow of Death. And Christian must needs go through it, because the way to the Celestial City lay through the midst of it. The pathway was extremely narrow. On the right hand was a very deep ditch. On the left hand was a very dangerous quag. Besides, the darkness was so great that Christian could hardly tell where, or on what, in going forward he should next set his foot.

About the midst of this valley, and near the wayside, was the mouth of the Underworld. Ever and anon flame and smoke would come forth with hideous noises. Christian heard doleful voices, and fiends came towards him. Near the burning pit one of the fiends came up softly to him, and whisperingly suggested many bad thoughts which he verily believed proceeded from his own mind.

When Christian had travelled in this disconsolate condition some considerable time, he thought he heard the voice of a man, as going before him, saying: "Though I walk through the Valley of the Shadow of Death, I will fear no evil, for Thou art with me." Then he was glad, because he gathered that some who feared God were in this valley as well as himself. Then the day broke, and Christian said: "He hath turned the shadow of death into the morning."

Now, as Christian went on his way he came to a little ascent, which was cast up on purpose that pilgrims might see before them. Up there Christian, looking forward, saw before him Faithful, his fellow townsman, of whom he had heard from the porter at the Palace Beautiful. Then said Christian aloud: "Ho, ho, soho! stay, and I will be thy companion!"

Then I saw in my dream that they went very lovingly on together, and had sweet discourse of all the things that had befallen them in their pilgrimage, and of what had happened in the City of Destruction after Christian had left.

When they were got out of the wilderness, they presently saw a town before them, and the name of that town is Vanity. And at the town there is a fair kept, called Vanity Fair; it is kept all the year long. Almost five thousand years ago there were pilgrims walking to the Celestial City, and Beelzebub, Apollyon, and Legion, with their companions in evil, perceiving that the pilgrim's way to that city lay

through this town of Vanity, contrived here to set up a fair, wherein should be sold all sorts of vanity, and that it should last all the year long.

As Christian and Faithful entered into Vanity Fair, the people wondered at their apparel and at their speech. The town itself was in a hubbub about them. That which did not a little amuse the merchandisers was that these pilgrims set very light by all their wares. They cared not so much as to look upon them, and when asked what they would buy answered gravely: "We buy the truth."

The behaviour of Christian and Faithful so little suited the people of Vanity Fair that the pilgrims were taken and examined, and those that examined them did not believe them to be any other than mad, or else such as came to put all things into a confusion in the fair. Therefore they took them and beat them, and besmeared them with dirt, and then put them into the cage, that they might be a spectacle to all.

Then some of the men in the Fair, that were more observing than the rest, seeing the patience of Christian and Faithful, began to check and blame the baser sort for their treatment of the pilgrims. Thus, after words had passed on both sides, the disputants fell to blows.

Then were these two poor men brought before their examiners again, charged with causing the hubbub, beaten, loaded with irons, led in chains up and down the Fair as an example and terror to others, and with threats remanded again to the cage.

A convenient time being appointed, they were next brought before Lord Hategood for trial. They were charged with injuring the trade of the town, and with causing commotions by winning a party to their most dangerous opinions. Evidence against Faithful was given by Mr. Envy, Mr. Superstition, and Mr. Pickthank, and, the jury finding him guilty, he was sentenced to the most cruel death that could be invented. They therefore brought him out, scourged him, buffeted him, stoned him, pricked him with their swords, and finally burned him to ashes at the stake. But a chariot and horses waited for him, and took him up through the clouds to the celestial gate.

As for Christian, he was taken back to prison, where he remained for a space, but He that overrules all things so wrought it about that Christian escaped them and went his way.

### CAPTIVES IN DOUBTING CASTLE

Now, I saw in my dream that Christian went not forth from Vanity Fair alone, for there was one whose name was Hopeful—being made so by the beholding of Christian and Faithful in their words and behaviour in their sufferings at the Fair. This man joined himself unto him and, entering into a brotherly covenant, told him that he would be his companion.

Having passed over the little plain called Ease, and refused the invitation of one Demas that they should leave the narrow way to look at the silver-mine on the hill called Lucre, they came to a stile leading into Bypath Meadow.

The road that they had come by was very rough, and Christian, looking over the stile, saw that a path led along by the way on the other side of the fence.

"Here is the easiest going," said Christian. "Come, good Hopeful, and let us go over!"

"But how if this path should lead us out of the way?" said Hopeful.

Christian remarking that it went along by the wayside, Hopeful was persuaded, and the two went over the stile, and found the path very easy for their feet. Presently the night came on, and it grew very dark; then it began to rain and thunder and lighten in a very dreadful manner. They saw they had lost their way, and Christian began to blame himself for bringing his companion out of the way.

But Hopeful comforted him and forgave him, and presently they were at rivalry as to who should go first, and so meet any danger that might lie in wait for them on the way back to the stile. By this time the waters were greatly risen, and the way was perilous. At last, lighting under a little shelter, after having been nearly drowned nine or ten times, they decided to rest there till daybreak. But, being weary, they fell asleep.

Now, near where they lay was a castle called Doubting Castle, the owner whereof was Giant Despair; and it was in his grounds that they were sleeping. And he, getting up early, saw them, bade them awake, and, driving them before him, put them into a dark and stinking dungeon of his castle, where they lay from Wednesday morning till Saturday night.

On the Thursday, acting on the counsel of his wite Diffidence, Giant Despair got a crab-tree cudgel, wherewith he beat

them fearfully. On the next morning, again on the advice of his wife, he came to them and advised them to make away with themselves. And when they prayed him to let them go, he rushed upon them, and had doubtless made an end of them himself, but that he fell into one of his fits—for he sometimes, in sunshiny weather, fell into fits—and lost for a time the use of his hand.

Towards evening the Giant went down into the dungeon again, and, finding that they were still alive, fell into a rage and threatened them so dreadfully that Christian's courage began to fail. But Hopeful comforted him by reminding him of the victory he had had over Apollyon, and how he had come through the Valley of the Shadow of Death.

On Saturday morning, the Giant, having had further counsel with his wife, had the prisoners into the castle yard, and, after showing them the bones and skulls of those he had already despatched, told them he would tear them into pieces within ten days. With that he beat them all the way back to the dungeon.

That night the Giant and his wifebegan to renew their talk about their prisoners; and the Giant wondered that he could neither by his blows nor his counsel bring them to an end. His wife replied that she feared they lived in hope that someone would come and release them, or that they had picklocks about them. The Giant at this resolved to search them in the morning. But about midnight on the Saturday, Christian and Hopeful began to pray, and a little before day Christian exclaimed:

"What a fool am I thus to lie in a stinking dungeon, when I might as well walk at liberty! I have a key in my bosom, called Promise, that will, I am persuaded, open any lock in Doubting Castle."

And he pulled it out. It opined the dungeon door, the outward door, and the iron gate.

The gate as it opened made such a creaking that it waked Giant Despair, who, hastily rising to pursue his prisoners, felt his limbs fail; for his fits took him again, so that he could by no means go after them. Then they went on, and came to the King's highway, and so were safe at last, because they were out of the giant's jurisdiction.

### THE END OF THE PILGRIM'S JOURNEY

Christian and Hopeful afterwards came to the Delectable Mountains. Here they were welcomed by the shepherds. The shepherds, whose names were Knowledge, Experience, Watchful, and Sincere, had them to their tents and gave them good counsel as to their way, and showed them through their perspective glass the gates of the Celestial City.

So they went on, and behold a man, black of flesh but covered with a very light robe, came to them, and, learning that they were bound to the Celestial City, bade them follow him, for it was thither, he said, that he was going.

Now, the name of this man was Flatterer, and by-and-by, before they were aware, he led them both within the compass of a net. Taken in their distress they remembered the shepherds had warned them of the man.

At last they espied a Shining One coming towards them, with a whip of small cords in his hand. When the Shining One was told that they were poor pilgrims going to Zion, he rent the net, put them in the way again, and, having chastised them, bade them go on and remember the other warnings of the shepherds.

They went on till they came into a certain country, whose air tended to make one drowsy if he came a stranger into it. Hopeful was for falling asleep, but Christian remembered that this must be the Enchanted Ground, of which they had been warned. And so, to prevent themselves from falling into a sleep from which there was no awakening, they fell to good discourse.

In time they were got over the Enchanted Ground, and entered into the country of Beulah, whose air was very sweet and pleasant. The way lying directly through this country, they solaced themselves there for a season. Here they heard continually the singing of birds, and saw every day the flowers appear in the earth, and heard the voice of the turtle-dove in the land. In this country the sun shineth night and day; wherefore this was beyond the Valley of the Shadow of Death, and also out of the reach of Giant Despair, neither from this place could they so much as see Doubting Castle. Here they were within sight of the city they were going to,

also here the pilgrims were met by some of the inhabitants thereof.

As they went they were met by two men in raiment that shone like gold, also their faces shone as the light. These men asked the pilgrims whence they came; and they told them. Then said the men: "You have but two difficulties more to meet with, and then you are in the city." Christian, then, and his companion asked the men to go along with them; and they said they would. So they went on together until they came within sight of the gate. But betwixt them and the gate was a river, and there was no bridge to go over. The river was very deep.

The men that were with them, in answer to their questions, told them that they must go through the river, which they would find deeper or shallower as they believed in the King of the place. They then entered the water, and Christian began to sink, crying out to his good friend Hopeful: "I sink in deep waters; the billows go over my head."

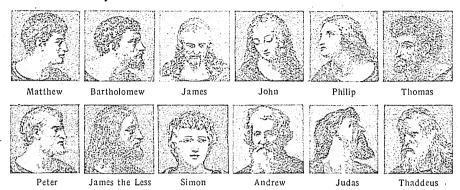
Then Hopeful bade him be of good cheer, and had much ado to keep his brother's head above water. But after a while they both took courage, and Christian presently found ground to stand upon, and so it followed that the rest of the river was but shallow. Thus, they got over.

Now, upon the bank of the river, on the other side, they saw the two Shining Ones, who there waited for them. Wherefore, being come out of the river, they saluted them, saying: "We are ministering spirits, sent forth to minister for those that shall be heirs of salvation." Thus they went along towards the gate.

Now, you must note that the city stood upon a mighty hill, but the pilgrims went up that hill with ease, because they had these two men to lead them up by the arms. They had likewise left their mortal garments behind them in the river.

And I saw in my dream that Christian and Hopeful, after giving in their certificates, went in at the gate; and lo, as they entered, they were transfigured, and they had raiment put on that shone like gold. There were also those that met them with harps and crowns, and gave these to them. Then I heard in my dream that all the bells in the city rang again for joy, and that it was said to them: "Enter ye into the joy of our Lord."

### The Story of the Most Beautiful Book in the World



## THE TWELVE

The twelve humble men who walked with Jesus in Palestine would have been astounded if someone had prophesied to them that they would change the history of the world, and for thousands of years would remain the most interesting group of men in the books and languages of all nations.

They did not realise how near they were to the supreme mystery of life. At the arrest of their Master they forsook him and fled. It was not until after his death that they realised the divine majesty of him with whom they had lived.

And even then they did not see the whole truth of their destiny. They thought the end of the world was at hand. They believed that Christ would appear in the heavens before their generation had passed They remained in Jerusalem waiting for his coming. It was beyond their imagination to realise that out of their simple lives, out of their own simple story of the Master, would come the great revolution of Christianity. How interested we are to look back on these men! They actually lived, day after day, in the society of Jesus. They heard his voice, they looked into his eyes, they walked at his side, they sat with him at meals, they touched him with their hands, they knew his ways, his every habit.

Ah, if they had only realised, as we know by experience, the long road that Christ's religion had to travel, would they not have told us more of the Master, and filled whole books with their memories of his life on Earth? Not one of them, it seems, considered how it would be when they were dead, and there was left on Earth no one alive who knew Jesus.

Among this little group of men none is so interesting to us as that disciple whom Jesus loved—the beloved disciple, as he has ever since been called—the fisherman's son, John. He was the disciple who was nearest to Jesus.

The father of the beloved disciple was a well-to-do Galilean fisherman named Zebedee, able to hire servants and to live in some ease. James and John, his two sons, probably received some education in their boyhood, and certainly from their mother, the pious Salome, they must early and all through life have gained the chiefest impulse of all education, a desire to live closely with God.

They were strong, healthy, thoughtful youths; they understood the seamanship of their day and country; they could face hardship, and were inured to danger; they earned their living as fishermen, but did not think that living ended there; they were conscious of God and the mystery of life.

GREAT FIGURES OF THE OLD TESTAMENT · THE LIFE OF JESUS

So far as we can gather, John was sufficiently reflective to feel that the priests of his religion were far from the secret mystery of the human heart. seems that early in his life he went to hear the extraordinary preaching of the hermit of Jordan, who cried aloud for repentance, and who baptised his converts into a new and deeper form of life. It is easy to imagine how James and John talked together in their ship about the mystery of life and the problems of their nation.

We can see how the preaching of John the Baptist, with its reality, its fierce passion, and its splendid vigour, must have appealed to these young men. Perhaps the refined disposition of John felt that there was some difficulty about following the Baptist, but his hunger and thirst after reality in the spiritual life made him at last a disciple of this new prophet. Many men follow a leader in whom they do not see all they desire to see, because they can find no higher, and are themselves incapable of leading men.

#### ESUS CALLS JOHN TO HIMSELF AND TEACHES HIM THE SECRET OF LIFE

It was while the fisherman John was listening to John the Baptist at Bethany that Jesus found him, and called this son of Zebedee to follow him. The first step had been made when John sought the Baptist rather than the rabbis; the second step was when he left the thunders of the Baptist for the love of Jesus.

Henceforth the road was clear before The secret of life was discovered. Instead of thinking about sin and wrath and judgment, he thought of love. He saw that the heart is at rest when it answers the Father's love with a son's yearning. Intimately, then, he was able to enter into the idea of Jesus, destined to shake the world and transform the whole orb of human life. If we open our Bible at the First Epistle of John, and read it over quietly by ourselves, we shall see how wonderfully this Galilean fisherman entered into the true spirit of Jesus.

When we read these immortal simplicities, so tender, so overflowing with solicitude, do we not realise how close and how dear a companion to the Master must have been the man who wrote them?

It is the spirit of the whole Bible that has given light and joy and freedom to mankind; and it is the spirit of the Gospel according to John which shows us how intimately, and with what perfect insight,

the beloved disciple understood the heart of his Master.

Mark was a man who observed; John was a man who perceived. In the Gospel according to Mark—the earliest, the simplest, the most picturesque, and in some ways the most useful of all our documents we have a wonderful narrative, written by a man who saw the value of details, had an eye for the picturesque, and stated all the essential things he said and saw.

#### THE WRITINGS OF JOHN THAT REVEAL TO US THE SECRET OF THE MASTER

In the Gospel according to John we have the document of a man who perceived the meaning, the inner significance, the spiritual mystery of all he saw and heard.

If we read the good tidings according to John, we shall see how the writer had entered into the secret of his Master. It is the Gospel of love.

These things have I spoken unto you (he heard Jesus say) that my joy might remain in you, and that your joy might be full. This is my commandment, That ye love one another, as I have loved you. Greater love hath no man than this, that a man lay down his life for his friends. Ye are my friends, if ye do whatsoever I command you.

### And again:

A new commandment I give unto you, That ye love one another; as I have loved you, that ye also love one another. By this shall all men know that ye are my disciples, if ye have love one to another.

#### OHN'S VISION OF JESUS AS THE LIGHT OF THE WORLD

And how wonderful and illuminating is this record by John of our Saviour's words:

I am come a light into the world, that whosoever believeth in me should not abide in darkness. And if any man hear my words, and believe not, I judge him not; for I came not to judge the world, but to save the world.

No other disciple perceived so surely as John that without the idea of Jesus, that is to say, the Fatherhood of God, the Brotherhood of Man, and Love as the laws of the universe, life was a darkness. John saw, as no other saw, that Christ was a Light; John felt, as no other felt, that this Light was warm and gladdening, and full of comfort. Among the friends who walked with Jesus in Galilee almost every character of humanity is represented, and through them every conceivable idea of Jesus has been presented to the world. But it is to the beloved disciple that we owe chiefly the true, and therefore the most victorious, idea of Jesus, namely, the Jesus of Love—the Love given to make men happy, the Light shining that men might no longer walk in the darkness.

Because John loved he was beloved, and because he loved he understood. We can never understand any person deeply and satisfactorily unless we love. John loved Jesus, and he understood the spiritual mystery of his Master's teaching. Through him has shone down the ages the pure light of the love and mercy of the Master.

## THE LAST MAN ON EARTH WHO HAD SEEN AND KNOWN JESUS

We know little of his long life. It is certain that he remained at Jerusalem for some time after the Resurrection. We also know that he was put in prison, and that he was sent as a missionary.

It is thought that he presently retired to Ephesus, and it seems that many people flocked to him for instruction. There was some idea, apparently, that he would never die, that Jesus would come again with power and great glory before death touched the disciple of love, and therefore John must have been eagerly sought by those who believed in Jesus.

He lived to be a very old man, outliving, we imagine, all his companions, and he remained for many years on Earth, the last man who had known Jesus.

Legends of many kinds sprang up around his memory, but we are not interested in them. If he was miraculously delivered from torture and death, it makes no difference to our ideas concerning him. What interests us, and holds all our wonder and affection, is that this fisherman alone among the Twelve penetrated to the secret of Jesus, and that through him we have received the idea of Love. He was beloved by Jesus; he has been beloved by men and women all over the world for nearly two thousand years; he will always be loved by those who have the great secret of Love in their lives.

## THE LITTLE BAND OF TWELVE WHO WALKED WITH JESUS

When we look back into the documents of the past there is little, all too little, to be learned of this little band of men who walked with Jesus and revolutionised the world. We have looked at John; let us see what we can learn of the others.

On that day when Jesus came to John the Baptist, there was listening to the preacher of the wilderness a young fisherman named Andrew.

He was born in Bethsaida, in Galilee, and he earned his living with a brother named Simon Peter, sharing a house with him at Capernaum. It seems that his disposition was religious, that he was discontented with the formal religion of the priests, that he felt a desire for some deeper and more spiritual communion with the great God who had created Heaven and Earth. As he stood listening to John he saw Jesus approach, saw him present himself for baptism, and heard the Baptist pronounce words of special blessing on the Young Carpenter. When he went home he narrated the incident to his brother, and Simon Peter heard Perhaps they the tale with interest. discussed the matter as they mended their nets, or as they fished together under the stars on the Sea of Galilee. Their partners, James and John, must have shared these interesting conferences.

# THE FISHERMEN WHO LEFT THEIR NETS TO BECOME FISHERS OF MEN

Some time passed, and one day, when they were fishing from the shore, Jesus approached and said: "Follow me, and I will make you fishers of men."

In this one sentence, so quiet and so simple, he flashed upon their conscience the light of eternity. They saw the immense comparison—fishing to earn their own bread, toiling to save others. Their old longing for a fuller life took complete possession of them. "And they straightway left their nets and followed him."

Of the rest of St. Andrew's life we know little, except that he was ever on the fringe of that little inner brotherhood which was so close to Jesus. Peter and James and John were the nearest to Jesus—James and John were brothers and occasionally Andrew, the brother of Peter, was called into this inner circle. It is said that Andrew went as an apostle to many foreign countries; legend ascribes to him the working of extraordinary miracles. There was a gospel called The Acts of Andrew, but it was not accepted by the Church, and now it has vanished. Tradition declares that he died a martyr's death by crucifixion, on a cross shaped like an X. This is the origin of the St. Andrew's Cross with which we are familiar in the Union Jack.

Among the four fishing partners, the brothers Simon Peter and Andrew, and the brothers James and John, Simon Peter, by the very force of his character, was the chief. He was marked out during his discipleship for special favour. It was to his home in Capernaum that Jesus resorted, and that humble home came to be spoken of among the brotherhood as "the house," as if it were the very home and centre of the Master's life. Then it was to Peter that Jesus confided the care of the Brotherhood after the Crucifixion.

# THE FAILURE OF PETER AND ITS

To follow the story of Peter's life as an apostle is to convince oneself of the truth of the Christian religion; nothing could be more human, more real, more honest. If our documents were false, the great struggle between Peter and Paul on which the history of Christendom depended-would have been hidden or And from Peter's failure—for Peter failed to realise the immensity of the Idea of Jesus-we learn a lesson of great value. We all remember how Peter, when our Lord called him to walk over the water, suddenly doubted and began to sink. Yet, despite Peter's doubts on this occasion, and on the occasion of the casting of the nets, and on that other terrible occasion when he denied his Master, our Lord loved and trusted him. In after life Peter was always true to this trust, and was called a pillar of the Church.

It was said that all his later life Peter spent in repentance of his early faults, and that when he died each check was furrowed deep with the shedding of tears.

## IMPULSIVE PETER, THE MOST HUMAN OF ALL THE DISCIPLES

All through the history of Christianity Peter has been dearly loved by the faithful, perhaps because he was so human. His temper was hasty, but he was swift to make amends, and as he grew older the nobility of his character seemed to shine out more and more. He was a great leader among the apostles, and one of his finest characteristics was his humility. There is a legend that at his death he begged his executors not to crucify him in the position in which our Lord had been crucified, and that he was therefore put to death head downward.

Peter, impulsive Peter, was the kind of man we often meet in life, the man

who is all courage one moment and all fear the next; always wanting to go forward and always drawing back.

For the rest of his life he was a bold and quite a beautiful preacher of the Fatherhood of God and the Brotherhood of Man. He died gloriously in defence of his faith, perishing on the cross, a willing martyr in the service of the Master whom he adored in his heart, and whose truths he nobly upheld. A more interesting, a more human, a more lovable man was not to be found among the Twelve. We admire the genius of Paul; we give our love to Simon Peter. Of John we read on another page; now we will see what we can learn of the other apostles of Christianity.

James, the brother of John, is one of the interesting group of four who were always close to the heart and counsels of the Master. His devotion is unquestionable. The one unhappy incident in his life is that of the ambitious request that he might sit with his brother John, one on either side of Christ, in the kingdom of heaven. But who will judge him for such a plea? Surely, in a moment of deep affection, he may have uttered his soul's longing. Love is often responsible for mistakes of judgment. But we know that James was a devoted apostle.

## A BEAUTIFUL STORY OF JAMES THE SON OF THUNDER

Jesus named him, with John, "a son of thunder," as if to signify the passionate impetuosity of his nature; and, after the Crucifixion, James occupied a chief place among the Twelve. And when Agrippa determined to punish the followers of Jesus, it was upon James that his vengeance fastened. There is a legend that when the man who accused James heard the the apostle's answer before the judges he was filled with remorse, and cried out that he, too, would follow Jesus; and the story tells that, on the way to the place of execution, this accuser doomed to die with James, pleaded to the apostle for forgiveness; and James, looking earnestly upon him, answered: "Peace be with thee," and kissed him. Thus, says the old legend, died the Son of Thunder and of the conflict Thunder, one of the earliest martyrs, one of the most beautiful of all those who loved and followed Jesus.

There is another James among the apostles about whom we cannot be sure of many important facts. Who was

James, the son of Alpheus? We cannot say. Nothing is known of him. According to certain people he is one and the same with James, "the brother of the Lord," about whom information is scant. After the Crucifixion Jesus appeared to James, and then James afterwards became a pillar of the brotherhood in Jerusalem. One of the stories tells that James the Less was of such dignity and power that the Pharisees hoped to persuade him to denounce Jesus. Instead of denouncing Jesus he confessed himself the servant and apostle of the Lord. So furious were the priests that they seized James then and there, and flung him down, killing him.

Philip lived at Bethsaida, and was one of those who listened to the teaching of John the Baptist. He brought Nathanael to Jesus, and was ever an eager seeker after God. It was Philip who said to the Master: "Lord, show us the Father, and it sufficeth us"; it was Philip to whom Jesus made the great answer: "Have I been so long time with you, and yet hast thou not known me, Philip? He that hath seen me hath seen the Father."

# THE MYSTERY OF THE LIFE AND DEATH. OF THE APOSTLE WHO DOUBTED

Philip's life as an apostle is utterly unknown. Some say he died without confessing Jesus. Another story tells that he was crucified head downward. Jesus is said to have appeared to him and to have rebuked him for want of meekness. But all these are legends.

Bartholomew was brought to Jesus by Philip, and it is probable that he is the same man as Nathanael. It seems that he became a missionary, and legend says that he was crucified with his head downward in Armenia. All we can be more or less certain about concerning this companion of Philip is that he lived the devoted life of a missionary. Thomas, according to tradition, was a carpenter and builder. He lives for ever as the man who would not believe in Jesus without material proof. He had known Jesus intimately, had served him, questioned him, listened to his teaching; but we read that when he saw the risen Jesus he could not and would not believe that his Master had truly risen. And then the doubting disciple, covered with amazement, exclaimed: "My Lord, and my God!"

Then answered Jesus: "Thomas, because thou hast seen me thou hast believed;

blessed are they that have not seen and yet have believed."

After this Thomas carried the good news of Jesus into Parthia and India, and we lose sight of him altogether, going out into the great darkness of the outer world preaching the religion of Jesus.

# MATTHEW, THE ONE RICH MAN AMONG THE DISCIPLES

Matthew interests us as, perhaps, the one rich man among the twelve apostles. Matthew the apostle is the same as Levi the publican, and he must have known comfort and luxury, and must have been a hard and avaricious man before the magic of Christ's personality called him to the life of a wandering disciple. Although the Greek and Roman churches call him a martyr, it would seem that he died a natural death.

Simon the Canaanite is supposed to have spread the knowledge of Jesus through Egypt, and to have died the death of a martyr. Some writers believed he preached Christianity in many countries, and even carried it as far as Britain; but this is evidently a confusion of Simon with Simon Peter, the great head of the Brotherhood having been credited with missionary labours all over the Earth.

Thaddeus has left behind no memory of his work. He is merely a name on the page of Holy Writ. We know more of Mary and Martha than we do of this companion of Jesus, chosen, we may be sure, for some good reason, and destined for work of immense importance. It is said that he became a missionary in Edessa, and we may be certain that by his influence the Light of the World streamed through the darkness of paganism.

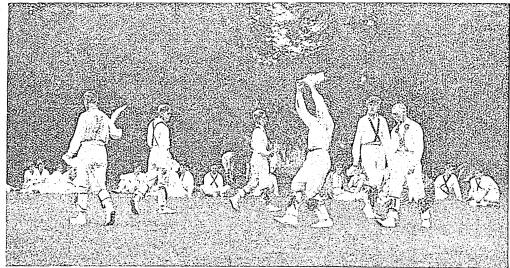
# THE MEN WHO LOST THEMSELVES IN A GREAT LOVE FOR THE MASTER

Nothing is more remarkable in the lives of the apostles than the way in which they all completely submerged themselves in the work of their divine Master. They had one thought only, in which they lost themselves, and this thought was to spread abroad the good news of Jesus.

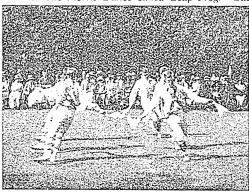
Matthias, who took the place of Judas Iscariot, has been supposed by many to be the same as Zaccheus and Barnabas.

Such is all we know about the twelve apostles. These twelve men, who revolutionised the world, have left us no definite record of themselves. They lost themselves utterly and gladly in the mystery and joy and triumph of their Master.

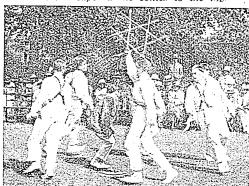
## THE OLD DANCES OF OLD ENGLAND



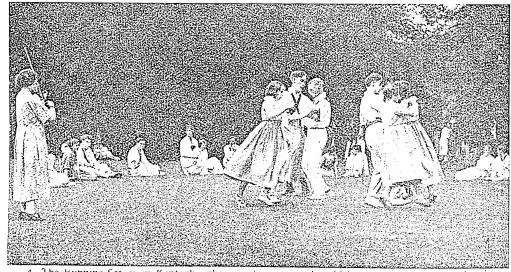
1. The Morris Dance called Leap-Frog. Each man does a caper as he comes to the top



2. Another Morris Dance, The Gallant Hussar, show-



3. This is a Sword Dance called Ampletorth. ing the galley, a favourite step, in which the dancer leader is holding up the lock, and the victim in the iumps out on to one foot, and twirls the other round. middle is kneeling down, before being "killed."



4. The Running Set, from Kentucky, showing the promenade, which comes between every figure. 6792



The Morris Men of Bampton dancing Half Rounds in the street on Whit Monday

### THE STORY OF OUR ENGLISH DANCES

In the last few years a great many children have been learning how to dance the old English country dances which died out a hundred years ago, and had been almost forgotten.

In every part of England, at schools, at Girl Guide meetings, and at special classes, you can see children, and grown-ups also, dancing Hey Boys, Goddesses, Gathering Peascods, and many other dances which everybody knew and loved when Shakespeare was a boy. From the days of Henry the Eighth, for two hundred years at least, these country dances were the chief amusement at all times of merry-making, not merely in the country among the common people, but at the King's court too.

But there are other kinds of old English dances as well as the country dances, and, like the country dances, they are called folk dances. This is because they were invented by the peasants themselves, by ploughmen who could not even write their own names, and not by great musicians or professional dancers.

Some of these dances have been altogether forgotten, but two kinds, the morris dance and the English sword dance—which is quite different from the Scottish sword dance—were discovered just before they too died out.

These dances are meant to be for men only, though women and boys dance some of them; and they are much more difficult and complicated than the country dances.

But although the country dances are for partners, boys and girls dancing together, and morris and sword dances are not, there are many ways in which they are alike; and they all started in the same way.

People who study old customs and the rites of savages, tell us that dances of this kind are to be found in the history of every nation in the world. They were danced in the early times when almost everybody lived by tilling the soil; the success of the crops each year was the most important and necessary thing in their lives.

Before anyone had heard of Christianity, men had strange customs and beliefs, many of which were about the ways of making the gods of the weather send rain and sun at the best times for the corn. They thought it pleased these cruel gods if they killed a man or an animal in their honour; and in the middle of winter, when all the earth seems dead, or in the spring, when the green corn begins to sprout, they had a great ceremony of sacrifice.

Before they killed the victim they always danced, partly to do honour to the gods, partly to excite themselves enough to do the killing—for it was not easy even for a savage to kill a helpless man whom he did not hate or even know. And if it was an animal that they killed, it was a sacred animal that no one must hurt at any other time, for they thought that the gods would be best pleased if they sacrificed something very precious.

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When the dancers had killed the animal, they ate part of it, thinking that it would make them specially strong and healthy, because it belonged to the gods.

With the same idea, all the people would make a ring round a sacred tree, in the spring, and would run forward and touch it with their hands, thinking that the hidden strength which made the leaves come out on the tree

would thus be given to them.

Now, all this may seem to have very little to do with our English folk dances, and, of course, we no longer believe in these strange customs, and no one remembers what they used to mean. But the maypole, which children dance round on May Day, is only that old sacred tree; and some country dances-Gathering Peascods, for instanceare maypole dances. When the dancers now run into the centre and clap their hands, they would have touched the tree in the days of old.

But the survival of these ancient rites can be seen far more easily in the morris and sword dances. In the first place, these dances are still performed only on special occasions, once in a year—on Boxing Day, or May Day, or Whit Monday. They are danced only by a single team of men, specially dressed up.

Above all, in some of the sword dances the "killing" is still done. The dancers each hold a sword in one hand, and grasp another dancer's sword by its point. Then they make complicated figures by following a leader over or under the swords, and finally, running in a ring, they plait the swords into a shape like a star with a hole in the middle of it. This shape, which is called the lock, or rose, is held up by the "captain" of the dancers, and a man runs into the middle of the ring and kneels down. Then the lock is dropped over his head, round his

neck; the dancers each take hold of a sword, and run round the victim, faster and faster, till at the end of the music they all draw their swords out of the lock, and the "victim" falls down and pretends to be dead.

The morris dances probably grew out of the sword dances; they are shorter, more violent, and more difficult in the steps than the sword dances. The men wear bells on their legs, and hold handkerchiefs, or, less often, sticks in their hands. The pictures on page 6792 are of men who have learned to dance morris dances from teachers who have discovered the old dances; but the picture on page 6793 is a photograph of the village dancers of Bampton, in Oxfordshire. These men learned the dances from their fathers, and their fathers in turn from their fathers, and so on back to a time which nobody knows; and every Whit Monday, for three hundred years at least, there have been morris dances at Bampton. You can go to see them.

Very few country dances have been danced like this without a break for many years. But there is one country dance, or group of dances, called the Running Set,

which has a strange story.

In the middle of North America, in the mountains of Kentucky, there lives a group of people who are quite cut off from all big towns, and who live very simply in the way that we all did hundreds of years ago. They are the descendants of English men and women who sailed over to America three hundred years ago, and they still dance this group of country dances which had quite died out in England. Picture 4 shows a figure in the Running Set being danced by English people who learned from the man who found it in America. So that dance has travelled a good deal, first from England to Kentucky, and then back again across the Atlantic.

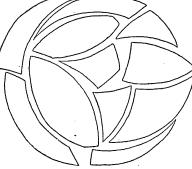
#### THE PUZZLE OF BROKEN PLATE

A WEALTHY lady was horrified one day to hear a terrific crash in her drawingroom where the parlour-maid was supposed to be dusting some very valuable china.

On hurrying into the room she found that the girl had dropped a large and costly plate of Chinese ware. It was a piece of perfect porcelain of the richest blue, with no design at all on it, and it had been broken into eleven frag-

The pieces were gathered up and placed on a table, and the lady tried to fit them together. But in gathering them from the floor their order had beno pattern to act as a

guide. For an hour she tried to get them ment, and arrange them as we desire. The into the right order, but without success.



come mixed, and there was The nearest to a circle that the lady got

She therefore decided to stick the pieces in this order on a sheet of cardboard, thus preventing the possibility of any of them being lost, and to hand them to a dealer in

old china, so that he might have the fragments properly arranged and stuck together.

The dealer engaged an expert to do the work, and the plate was restored so that the joins could hardly be seen.

How did the repairer arrange the pieces to form a perfect plate?

If we put a piece of thin paper over the picture of the fragments given here, trace them off, and then cut them out with scissors, we shall be able to experi-

solution is given in Section 56 of Group 18.

### THE RIGHT WAY TO SLIDE AND SKATE

SLIDING is, after running, probably the most natural of all physical exercises for a boy; and it has been said that a boy who in his early days has never enjoyed a good slide is never likely to enjoy any form of manly outdoor exercise.

It is a natural introduction to skating, and by teaching the laws of balance, and familiarising a boy with rapid motion that has no corresponding action of the limbs, it greatly assists the slider to learn to skate.

The best place for a good slide is a small pond covered with ice stout enough to bear, with a good run on land at each end of the slide. The slide should be across the pond from one side to the other, from sixty to a hundred feet long, and not far off should be a return slide so that players can go over one way and then, leaving the pond, turning round, and taking a short run go on the ice once more and slide back to near the starting point.

There is little instruction needed for sliding; experience is the best teacher. The speed at first should not be too great until confidence is gained. The feet should be kept close together and parallel with the line of the slide, the necessary speed and momentum having been given by the preliminary run. The sideways sliding often practised is not to be recommended at first. It generally leads to a fall, spoiling the pleasure not only of the one who falls, but of those following, who may also tumble over him as he lies in their way.

When skating is to be learned some preliminary practice may be obtained in sliding, the feet being arranged in various positions. Thus, the right foot may be in front with the left drawn up sideways at the back of the right heel, or both feet may be turned out until they are in the same straight line, the toes of the right foot pointing forward and those of the left pointing behind, while the heels are together.

Skating cannot, of course, be learned from books, though useful hints may be given as to the position of the feet, the carriage of the body, and so on. The art of skating successfully and gracefully consists in knowing thoroughly the rules of gravity, or balance. The greatest danger in skating is a fall backwards, through the feet slipping away in front, and this is avoided by throwing the weight of the body forward. If we must fall it is far better to fall forward than backward. We should turn out the tees and always keep the weight of the body well in front and inside the feet. It is wise from the beginning to see that one foot completes its stride before the next stride with the other foot is begun, and the ankles must always be kept stiff and firm.

A good plan is to gain support from a friend's arm and to practise, while doing so, keeping on one foot as long as possible. But

perhaps the best way to start is to place both feet together, and to get a friend to push us gently over the ice while we attempt to move neither foot. In this way we can give all our attention to balancing our body, and at the same time to get into the way of feeling ourselves moving on the skates. At first, if we find ourselves falling, it is best not to try to prevent this, but to see that we go down gently. Thereby we shall avert a heavy fall, with a bad shock and bruise.

Having had some practice in the way suggested, the best method of learning to skate is for us now to be left alone in the middle of the pond, to get on as best we can without support of any kind. We must dismiss from our minds all notion of walking. To skate we place our feet flat on the ice; there is no toe to heel bending of the foot and no rising on the toe.

To advance the skates we stand with the heel of the right foot a few inches away from the hollow of the left, and then with the edge of the left skate press against the ice to thrust the right foot forward. This gives the necessary impetus and, bringing up the left foot parallel with the right, we go forward till the impetus is exhausted. Then we repeat the motion, but with the left foot in front, the push off being given with the right skate. In this way we use both feet alternately, and soon we shall get confidence and feel that we have command over our feet and control of our balance. We may then increase the length of each stroke. For a beginner three to five yards is a good space to cover at each stroke, but, of course, good skaters do four times that distance.

We shall probably find ourselves skating only on the inside edge of the skate, but to confine ourselves to this, with no movement on the outside edge, is ungraceful and must be corrected. A good plan is to place something on the ice, such as a stone, to act as a centre to a circle, and then, standing three or four yards away, with our right side toward the stone, and looking over our right shoulder at the stone, to press the outside edge of the right skate firmly into the ice, and with our left skate propel ourselves round the stone, leaning well inward.

After a time we shall be able to lift the left foot off the ice; and we should practice doing this as long as possible, supporting ourselves on the outside edge of the right skate. Then we should practice the same movements the other way round, pressing the outside edge of the left skate into the ice, and propelling ourselves round with the right.

Most people soon find one of their feet much more advanced in learning to skate that the other. The ankle of the foot is stronger, probably, and skating becomes easier with it. But on finding this, we must give our chief attention to the backward foot and make them equally skilled and serviceable.

As we get on we must remember that the great principle of successful skating is to keep only one foot on the ice at a time, the longer the better. The knee of the acting leg must be kept rigid. The skater should never look at his feet, and his face should

always be turned in the direction in which he is going. All movements should be done gracefully without spasmodic effort, and one movement should be learned thoroughly before another is attempted.

Above all, never attempt to slide or skate on ice that is not absolutely safe. If there is the slightest doubt about it keep away.

### HOW TO PLAY OUOITS

Quoits is a game which has been played with enthusiasm in England and Scotland for nearly five hundred years, and even now the game is a most popular pastime in many parts of the country.

Young children will find it too difficult to play, for each quoit, a flat iron ring with a sharp outer edge, weighs nine to ten pounds though sometimes the rings are made a little lighter. The diameter of the outer edge of the ring should not exceed

eight and five-eighths inches.

There may be two players only, or four, playing as a side of two players against another side of two, and the game is to throw the iron rings, or quoits, over a pin, which is known as a hub. There are two hubs, placed about 18 yards apart, but this distance may be reduced or increased according to the strength of the players. Surrounding each hub should be a bed of clay in which the rings will partially embed themselves. These beds should be not less than four feet nor more than four feet six inches square.

Before starting play a number of points should be decided on for game. The first player then takes up a position level with one

of the hubs, and, pitching the quoit, giving it a slight rotary motion in doing so, he tries to place it so that it will fall on the hub at the other end. The first player throws both his quoits before the next player starts.

The quoit must be thrown so that it does not roll after striking the earth, for if it does so it is a foul unless it has first struck another quoit or the hub. A quoit which falls on its back is also a foul; and fouls

do not count.

The player whose quoit is nearest to the centre of the hub scores one point. or two points if both his quoits are nearer to the hub than either of those of his opponent. If two or more quoits belonging to different players are closest to the hub, and an equal distance from it, no points are scored.

All the players having thrown to one end, play continues by throwing to the other end, and so on till the game is finished.

The same order of play is not adhered to throughout the game, for the winner at each end is the first to throw his quoits to the next end. When throwing his quoit the player may stand on either side of the hub but not more than four feet away from it.

### DRILLING A HOLE IN A PIN WITH A NEEDLE

I<sup>T</sup> may seem a difficult feat to drill a hole in a pin with a needle, but it is quite easy. We first of all stick the pin into the head of

We first of all stick the pin into the a cork, and into each side of the cork stick the blade of a penknife, as shown in the picture, adjusting the angle of the blades as required. This is done by placing the head of the pin on the end of our finger and opening or closing the blades till the pin rests exactly horizontally. The two knives should be almost of equal weight.

We stick a needle into a cork with the sharp point uppermost, and put the cork into a bottle, driving it in firmly. Now comes the crucial moment of the experiment, when we balance the pin on the point of the

needle, as shown in the picture. This will not be very difficult if we have properly adjusted the penknives in the horizontal cork.

Having balanced the pin on the needle, all we have to do to make the hole is to blow gently on the horizontal cork till the whole arrangement begins to revolve, and to keep blowing so that the pin turns round and round on the point.

The needle being of much harder metal than the pin gradually bores

a hole in the pin, and if we persevere we shall be rewarded at last by seeing the point of the needle come right through the pin.

A very fine and sharp needle should be chosen for the experiment.

### ANSWERS TO PUZZLES ON PAGE 6672

r. America. 2. 54 and 45 miles. 3. Let every man skin his own skunk. 4. Beautify, beatify. 5. A-corn. 6. The young gentleman was the lady's son. 7. Peace. 8. Bath, Bedford, Dover, Ely, Paris. 9. Peace. 10. a Because he cannot get a living without somersaults (some assaults). b Bacon. c When it

is scaled. d When it's Browning. e Because he should never sleep on his watch. f One gives milk and the other gives way (whey). II. Chocolate. 12. Few, fewer. 13 Danes, Andes. 14. Grope, rope ope. 15. Nameless. 16 Bar-net. 17. A Shadow. 18. Idea. 19. Rhine. 20. Fifty.



### The Story of Immortal Folk Whose Work Will Never Die



## GREAT MEN OF ANTIQUITY

E ACH generation is inclined to think it is wiser than all that have gone before, and in some respects the claim can be made good. But the more we know of the earliest ages of civilisation, the more surprised we are at the wisdom, energy, mental power, and elevation of spirit displayed in them. No age has lacked great men.

Some periods are but dimly known, and their greatest figures only appear mistily, but we know from the effects they produced that these men must have been great in mind and soul. They so impressed their fellow men that they survive in memory as legendary heroes.

Here we are about to notice some of these varied figures from a past that lies close to the horizon of history. They cover a wide range of time—more than two thousand years—and they belong to many centuries. Their thought and activity leave a deep impression that powerful human personality has always been appearing, and will always appear. That is one of the world's great sustaining hopes.

The Chinese, the most numerous race, now regarded as fixed in a somewhat backward state, brought forth at least two great men comparatively early. They had such influence that they have moulded Chinese character for more than two

thousand years. The mental power they wielded was used for good purposes. Perhaps it was too successful. It was so great that it was not modified, as time went on, to suit the changes that naturally come in the world.

These two fine men of early China were Confucius, of whom we have read elsewhere, and Mencius. Confucius had died 106 years before Mencius was born, in the province of Shan-tung, in 372 B.C. Mencius made the extension of the work of Confucius his life's ideal. We do not hear of him till he was forty years old. Almost all we know of his early life is that he attributed his views and his character to the teachings of his mother in boyhood; and there is a tradition that he was also trained in wisdom by a grandson of Confucius. When he was about 45 he became the confidential adviser of one of the Chinese kings, with whom he remained five years. But no king would carry out the reforms which he recommended, for he insisted that the welfare of the people should be the sole aim of any king, and not wealth, or power, or glory.

Finding he was resisted by the king, who was his friend, he went to other Chinese kingdoms, for China was then much divided, and he was followed wherever he

EXPLORERS · INVENTORS · WRITERS · ARTISTS · SCIENTISTS

went by a band of admiring disciples. Later he returned to the kingdom of Chi for eight years, and then went wandering, again, scattering his wisdom in the Courts' of small kings, where he was treated with respect as a man who taught noble ways of living, particularly to kings and governors, who, however, excused themselves from putting his precepts into practice. When he died at 83, he had a band of faithful followers who had treasured his sayings, and by writing them down preserved them, so that now China has the works of Meng-tse in seven books. Meng-tse is the name which we write as Mencius, that being the Latin form of it.

The teaching of Mencius was that men are naturally good rather than bad, and ought to take great pains to develop the good side of their nature through kindness, wisdom, and right conduct. He advocated freedom in trade, low taxes, sound work, near-at-hand markets, and good roads. Kings should so act that they will be welcomed with joy wherever they go in their kingdom, for popular happiness and prosperity are the real tests of kingship. Till they are attained a true king will not rest or be satisfied.

## A MAN OF OLD CHINA WHOSE VIEWS ARE RESPECTED TODAY

Mencius also argued strongly against war, and was an advocate of benevolence towards the poor; but he did not believe in popular wisdom. He thought the mass of the people needed guidance from those who are wiser than themselves. Their interests should come first, before the interests of the king or the wealthy, but that should be brought about by the free will of the powerful and prosperous. His views have always had great influence in China, and, indeed, are still regarded as of a semi-sacred character.

Moses, the leader and law-giver, who welded the Israelites into a tribe or people, and gave them some measure of national feeling, is unquestionably one of the greatest figures of antiquity. When allowance has been made for the fact that much writing and much religious direction has been attributed to Moses which come from an age far later than his, there is a lofty sense of dignity, power, and organising ability in him, as the Bible story develops.

Moses, it is clear, apart from his curiously contrasted meekness, had enormous power over his fellow-tribesmen.

The date of his entry into the field of history is somewhere about 1300 B.C. That he had sufficient influence over the men of his race to gather them from Egypt, the land of forced labour, and from the neighbouring deserts of northern Arabia, and to change and hearten them till they rallied round a new religious ideal, and became a people with a common aim, proclaims him a man strong in human magnetism and spiritual force.

## Moses as the founder of morality for the world

His was the formative genius round which the wonderful Jewish race gathered for its strange march through the ages. From him came the very core of its tenacious religion. Around that core a later highly developed priestly system elaborated a minute ritual, but at the centre of it all are the Ten Commandments that he made the foundations of morality, first for his race and then for all the world.

Stripped of trivial formalities the Mosaic ideal, from the first, united a lofty spiritual conception of God with most practical rules of life for a people living under Oriental conditions. The broad lines of human justice were laid down, boldly and firmly, by this great pioneer. It may be said that the statutes of Moses, spiritual and practical, were not new. Most of them were in existence long before the days of Moses, but if that was so there was selection and adoption on a higher level than heretofore.

Though the story of Moses is indefinite in parts, and ends in mystery, the impression produced are those of power, dignity, and elevation unsurpassed.

Hammurabi (or Khammurabi), king of Babylon, the sixth king in the first dynasty of that empire according to the records preserved by Babylonian historians, reigned about the year 2250 B.C., or nearly 4200 years ago, and is the most famous monarch of those early times.

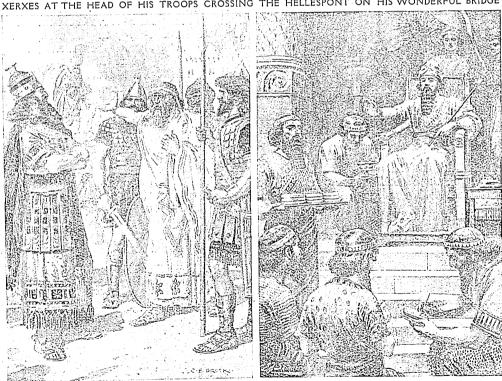
# THE KING WHOSE NAME FIGURES

In the Book of Genesis we read of a war when Abraham was alive. Amraphel, king of Shinar, and Chedorlaomer, king of the Elamites, with three other kings, were fighting against four kings in the neighbourhood of the Dead Sea, and Abraham's nephew Lot was captured, but Abraham managed to rescue him. The land of Shinar was Babylon, in the Mesopotamian Plain, and Amraphel was

# XERXES, CYRUS, AND HAMMURABI



XERXES AT THE HEAD OF HIS TROOPS CROSSING THE HELLESPONT ON HIS WONDERFUL BRIDGE



CROESUS APPEALS TO THE CONQUERING CYRUS

KING HAMMURABI DICTATING
HIS CODE OF LAWS

another name for King Hammurabi. The Elamites lived in the hilly country to the east of the River Tigris, where the land rises into Persia, and their king, called Chedorlaomer in the Bible, and Kudar-Lagamar in the Babylonian records, was at first the most powerful monarch in the East. But Hammurabi drove the Elamites out of the Plain of Babylon into their native hills, and then, extending his conquests northward into Assyria, and westward into Asia Minor, federated all the minor kings under his own rule, and reigned from the Persian Gulf to the Mediterranean Sea, with Babylon as his capital. The special god of Babylon was Bel Merodach, or Marduk, and Samas, the sun-god, had a wider sway.

# THE MESSAGE OF HAMMURABI WHICH HAS ENDURED THROUGHOUT THE CENTURIES

Here is a proclamation by Hammurabi written in two languages on clay cylinders, now in the British Museum.

Hammurabi, the mighty king, king of Babylon, king of the four quarters, the founder of the land, the king whose deeds unto the heart of Samas and Marduk are well-pleasing, am I.

The summit of the wall of Sippar, like a great mountain, with earth I raised. With a moat I surrounded it. The canal of Sippar I dug out, and a wall of safety I erected for it.

Sippar and Babylon in a peaceful habitation I caused to dwell continuously.

Hammurabi, the darling of Samas, the beloved of Marduk, am I.

That which from days of old no king had built, for Samas my lord gloriously have I accomplished.

We might suppose from reading this memorial inscription that Hammurabi was somewhat of a braggart, but if we look closer at what he says we shall see that, besides serving his gods faithfully, he was doing sound and useful work. It is not because of his conquests in war, though they were great, but because of his substantial work for the good of his people that he has lived long and honourably in history.

# THE SPLENDID CODE OF LAWS OF AN EARLY CIVILISATION

Through him we know more about the remarkable civilisation that existed for thousands of years in the Plain of Mesopotamia than from any other source. The lands that he won by war, during his reign of 43 years, he held in a large degree in peace, because he brought them under the rule of law and justice. His great Code of Laws exists to this day, and had

a lasting influence in the East down to the times of the Greek conquests under Alexander the Great, and later. From those early laws many of the laws of the Jews were derived. Abraham, the founder of the Jewish race, we must remember, was a native of Ur, one of the cities under Hammurabi's rule. Not from Egypt, but from Babylon, the Jewish people derived laws in existence a thousand years before Moses was born.

The laws of Hammurabi covered every department of life. There was a system of trial by judges, with the elders of the people in attendance, and right of appeal to higher courts and to the king. tenure of land, the honesty of trade, the soundness of work done, the wages to be paid, housing and rent—subjects which we regard as specially belonging to our own times—were all regulated by law in Hammurabi's reign. Religion had its own endowments in land, but also its own duties. It was expected to relieve poverty, to provide seed for those whose harvest had failed, and to ransom prisoners who were too poor to buy their freedom.

# CONDITIONS OF LIFE IN THE

All the legal doings under this enlightened king were recorded for reference, and we have today, in the Babylonian writing, many sample judgments, many charters giving wider liberties than had existed, many legal contracts to ensure fair dealing in business, many despatches recording public occurrences, many private letters revealing personal relationships.

As regards practical affairs Hammurabi's reign was conspicuous for its enlightenment. There was a police system in full working order. A regular postal delivery helped business. Irrigation was scientific, and a public duty. Waterways were carefully preserved and new canals were cut. Corn was stored to guard against the effects of bad harvests. Trade by caravan passed freely along safe and well-supervised roads.

The worst feature of the laws was the severity of the punishments. Fines were the commonest punishment, but death was the penalty for many faults if they were wilful. A man who lied might have his tongue cut out; a forger might have his writing hand cut off; a bad wife might be drowned. Any serious wrong-doing was a serious danger to the guilty person. But law and safety were there for the

well-doer in the reign of the great law-making King Hammurabi.

Akhnaton, the most interesting king of the eighteenth Egyptian dynasty, was a son of Amenhotep the Third, one of the most luxurious and magnificent of the kings who ruled Egypt when she was at the height of her power, wealth, and glory. Egypt under Amenhotep was held in deep respect from the Euphrates to the Black Sea and the Levant, most of this wide region being formed of tributary States. The religion of the country was then a worship of many gods, mostly in animal forms, though the chief centres of worship were Thebes, in the temples of Ammon or Amen, and Heliopolis, in the temples of Ra, or Aton. Between the priesthoods of these two shrines keen rivalry prevailed. The reigning kings absorbed Ammon into their own names, and Akhnaton succeeded Amenhotep the Third, under the name of Amenhotep the Fourth, when he was a boy of eleven.

## THE KING OF OLD EGYPT WHO BELIEVED IN ONE GOD

But the mother of the boyish king was a confirmed worshipper at Heliopolis of the Sun-god Ra, or Aton, and when he was seventeen and felt he could assert his preferences as a king, he changed his name from Amenhotep, which means The Peace of Ammon, to Akhnaton, which means The Glory of Aton. Henceforward his great aim in life was to spread the worship of Aton the Sun-god, and to discountenance the worship of any other gods. In short, living in the midst of the worship of innumerable gods, each of them supported by a clique of priests, and specially believed in by some section of the people as their favourite deity and fortune bringer, Akhnaton was bold enough to conceive of one God as the originator and sustainer of life, and to conceive of Him as the father and mother of all beings He had made. This is his passport to fame.

He carried out his conviction by leaving Thebes, the city of Amen-worship, and by building a new capital, El Amarna, and dedicating a large site in it to Aton. Also he systematically defaced the inscriptions to other gods, and included in the obliteration the names of his own ancestors, and his own name where Ammon formed a part.

Akhnaton was not only absorbed in his religious reforms, but he was opposed to war. His interest in the outlying parts of

his dominions slackened, and towards the end of his reign he was threatened by revolt from many quarters, and opposed at home by the adherents of the gods he had dispossessed. When he died at the age of 28, in the year 1350 B.C., and was succeeded by his son-in-law Tutankhamen, who reverted to that name from Tutankhaton, the nation quickly returned to Amen worship, and a multiplicity of gods. The temples Akhnaton had built to Aton as the one God were defaced, and the city he had founded was deserted.

# A KHNATON'S BOLD EFFORT TO STAMP OUT THE WORSHIP OF IDOLS

Akhnaton, though his plans of spiritual reform failed, has the distinction of being a king who, in the midst of surroundings altogether unfavourable to independent thought or change, cared enough, and was bold enough, to cast aside the idea that mixed idolatry can be helpful to the soul of man. He worshipped the all-reviving Sun as the symbol of an eternally creative Deity, and though, may be, his views were crude, they were a long step in advance of the views held in the days before Moses had begun to present to men a purer faith.

The years of Persia's glory in history, from the rise of Cyrus the Great to the conquest of Darius the Third by Alexander the Great, were only 208. In that period Persia produced three great conquerors, Cyrus, Cambyses, and Artaxerxes the Third, and two great rulers, Cyrus and Darius the First; and in Xerxes the First she had a king who made a mighty show in the world. Cyrus, Darius, and Xerxes are figures that will always catch men's attention when the world's history is broadly surveyed.

# How cyrus overcame his master the king of the medes

Of Cyrus legendary stories abounded, and were included in Greek histories, but the plain truth seems to be that he was a Persian king of a small State in the country of the Elamites, and paid tribute to the King of the Medes, who at that time (550 B.C.) was the most active Eastern monarch. The Median King, Astyages, for some unknown reason, attempted to chastise his vassal, but was defeated and captured, and soon Cyrus was accepted as King of the Medes and the Persians.

Cyrus was a gentleman, large-minded and tolerant, and many of the surrounding States were only too glad to be ruled by such a king. The largest rival State was Babylon, which was then ruled by the antiquarian King Nabonidus, who did much to preserve Eastern history, but was a dreamer rather than a man of action, and had lost grip of the outlying parts of Babylon. The Jews, who were then captives in Babylon, were looking eagerly to Cyrus as a possible deliverer, and no doubt many subject peoples hailed his growing power with delight. So, when he approached Babylon with his army, the city welcomed him, and he preserved it and gave it freedom and safety.

# THE GREAT SOLDIER WHO WAS

The Jews were released and sent back to Palestine. With the possession of Babylon, Cyrus succeeded to the Syrian and Hebrew possessions of the Babylonian kings. Where opposition was offered to him, as by King Croesus and certain allies in Asia Minor, he crushed it by force of arms, and soon he reigned from Cashmere to the Black Sea.

Cyrus was a great statesman as well as a soldier. He gave peoples and towns subject to him reasonable independence as long as they were loyal and fulfilled imperial obligations. In religion a follower of Zoroaster as a Sun-worshipper, he was singularly free from fanatical prejudices. The Jews regarded him almost as a Messiah, sent specially for their relief. As an organiser of Government he had method and firmness and kept in close touch with all parts of his wide dominions. By his rise from obscurity, his energy in war and government, and the impression he produced on men's minds through his character Cyrus the Persian has a right to be called great. He fell in an obscure war on the northern frontier of his Empire.

## THE STORY OF KING DARIUS WRITTEN ON THE ROCKS

After the death of Cambyses, the son of Cyrus, who succeeded him, and who added Egypt to the Persian Empire, there was a period of confusion when usurpers were seeking to gain the kingship. Out of this confusion emerged Darius, a man of the royal blood, who surprised and slew the usurper who had been temporarily successful. This occurred in the year 521 B.C. and Darius, called the Great, ruled for 36 years.

He is the one ancient monarch who has helped history by graving on the rocks a summary of his doings as king, which reads as if it was quite frank and true. His inscription on the great rock of Behistun is famous, and has already been referred to on page 6262; and there are other instances of this useful habit by which Darius left useful messages to posterity about himself.

Darius was not a conqueror of set purpose. He knew that the Empire he ruled was quite as large as the resources of the Persians and Medes and their federated races could manage, so he set himself to govern well that which he already had, But he was obliged to go to war, now here now there, with the wild tribes that fringed his empire round, and to establish order in their midst as a means of defence for his own country. So whether he desired extension of territory or not his possessions increased. In this way he crossed the Bosphorus to chastise the aggressive Scythians, and passed the Danube in pursuit of them, and so came into that close touch with Europe, and the European Greeks, that was to cost Persia dear. Many Greeks lived in Asia along the coasts, and were under the government of Darius and knew its value.

# THE HAPPY REIGN OF ONE OF THE GREATEST KINGS IN HISTORY

They advised the Greeks in Greece to leave the Persians alone; but the advice was not taken, and as they had done before, many of the Greeks on the mainland gave help to the enemies of the Persians, and so drew Darius into sending expeditions against Greece itself. Two such expeditions were defeated, one at Mount Athos and the other at Marathon, and when Darius died he was planning a final attack on Greece.

It is not by his successes or failures in war that Darius should be judged. He left throughout his dominions a feeling that he had promoted their welfare with foresight and fairness. In Egypt, which had only just been conquered when he came to the throne, he was rated as one of its most appreciated kings. He made a canal from the Nile to the Red Sea so that small ships could sail from the Persian Gulf into the Mediterranean Sea. He developed the trade of his lands, and gave them a common coinage. On the most sensitive of all points—religion—he conciliated races with widely divergent views. The Jew, the Greek, the Babylonian, and the Egyptian, all acknowledged the advantages of his rule. We should have to look far through the pages of history to find a greater king or ruler of men.

## FOUR GREAT MEN OF OTHER DAYS



TERRIBLE HAROUN-AL-RASCHID SENDS HIS BEST FRIEND TO HIS DEATH



HANNIBAL WATCHES HIS ARMY CROSSING THE ALPS ON THE WAY TO ROME





ARCHIMEDES DIRECTS THE WORKING OF ONE OF MOSES, ANGERED BY THE PEOPLE'S SIN. BREAKS HIS MACHINES AT THE DEFENCE OF SYRACUSE

THE TABLES OF THE COVENANT

Xerxes, the successor of Darius, had the double claim to the Persian throne of being descended from both Darius and Cyrus. Darius was his father, and Cyrus his grandfather, through his mother, Atossa. Xerxes had to suppress rebellions in both Egypt and Babylon before he set out on the expedition by which he is best known in history—the attempt to conquer Greece by the biggest army that the world had ever seen. All the resources of the Persian Empire were used to collect men and material for the campaign. The Hellespont was bridged in two places. Alliances were sought with the Greek States which were hostile to Athens. A huge fleet was concentrated in Levantine waters. At first the armies of Xerxes swept the Greeks away after defeating their fleet, and Athens was taken. When all seemed lost the Greek fleet again engaged the Persian fleet and, in the bay of Salamis, won a decisive naval victory which gave them the command of the sea and cut off the army of Xerxes from the Asiatic shore. ..

## THE SAD END OF THE GREAT EXPEDITION OF XERXES

Realising that his campaign had failed Xerxes returned himself to Persia, leaving his army in Greece under the command of his general, Mardonius. The Greeks were now as encouraged as the Persians were discouraged, and attacking the invaders at Plataea, 479 B.C., they utterly routed them. The Persians were quite unable to resist the solid masses of Greek infantry armed with long spears, and advancing in the formation known as the phalanx.

Xerxes, who is the king known in the Book of Esther as Ahasuerus, tried in vain to infuse a confident spirit into the Persians. They were beaten and knew it. The king himself, as time went on, became demoralised, and finally was murdered by his prime minister. After Xerxes had been dead 110 years the Persian King Artaxerxes the Third attacked and conquered Greece, but seven years after his death Persia was prostrate before the victorious invasion of the Greek King Alexander the Great.

Naturally, perhaps, the eyes of posterity are turned most frequently on men who did sensational deeds in the past that arrested general attention—on kings who fought great battles and annexed foreign countries, or on men who wrote books that stir for ever the minds or the hearts of

their fellow men; but the past is also adorned by quiet, inconspicuous men of science who passed on through the ages learning or inventions that have proved inconceivably useful in later times. One of the greatest of such men was Archimedes, a Greek mathematician, who sought knowledge for its own sake, and left it for others to put to practical uses.

# THE GREAT IDEA THAT CAME

Archimedes was born about 287 B.C. in the Greek city of Syracuse in Italy. He studied, when young, in Alexandria, then the most famous centre of the world's learning. Nearly all his later life was spent in his native city, where he was the intimate friend of its king.

His studies in mathematics are much too difficult to explain here. Suffice it to say they have been of great use to men of the highest learning, particularly many forms of measurement. A number of his works have been lost.

Three things he did are practical enough to be understood by anyone. The king asked him to find out if his crown was of pure gold. This he did by putting the crown in a vessel full of water, and observing exactly how much water is caused to run over the sides of the vessel. Then he put an equal weight of gold in the same full vessel of water, and observed exactly how much water that displaced, any difference being occasioned by metal in the crown which was not gold. It was this experiment that he thought of while he was in his bath, and in his excitement sprang out of the bath and ran home without his clothes shouting, "Eureka!" which means "I have found it."

# How the inventions of archimedes kept the romans at bay

The Archimedean screw for raising water was his invention. During his later years Syracuse was besieged by the Romans under Marcellus, and at the request of his friend the king the philosopher invented mechanical engines of defence which lifted the prows of the Roman ships out of the water and then dropped them and sank them. He is also said to have set the ships on fire by burning mirrors. His inventions delayed the capture of the city for three years. When it was stormed he was killed by a Roman soldier while he was working out a mathematical problem in the sand of the seashore. The Romans buried him with

KING MINOS

great honour, for they fully realised he

was a man of genius.

Of all the kings of the ancient world Minos is probably the one which the modern world would be most interested in hearing about in a definite manner. He reigned in the island of Crete when it was the centre of a civilisation that is now called Minoan

after him, and that for thousands of years was forgotten.

Such knowledge as we have comes to us in three ways. First, some of the Greek historians wrote of him as one of the wisest and best kings who had lived before Greece became famous. His laws were said to have been those on which the oldest laws of Greece were based. He kept order, by land and sea, in

the Eastern Mediterranean, and his country was magnificent and prosperous, great in

art and in commerce.

Then, around his name sprang up many legends, transmitted through Greek poetry, as in later times legends were woven round the names of King Arthur of Britain, and Charlemagne, King of the

It was Franks. said that in his palace was an underground labyrinth or maze, in which any stranger was lost; and there was kept a strange monster, half man and half bull, known as the Minotaur. Every ninth year the tyrant king demanded as tribute from Greece seven young men and seven maidens, voured by the



who were de- HAMMURABI'S CODE OF LAWS

monster. So strange were these mythological stories about Minos that some who read them thought there had not been any king Minos, but that he was only a figure in poetical fable.

In recent years, however, the traditional site of the palace of Minos, at Knossos in Crete, has been carefully and

thoroughly excavated, with remarkable results. The palace, a most labyrinthine building, has been disclosed, and a great deal of knowledge has been gained about the people who lived in Crete in the days of Minos, as we read on page 322. We still know practically nothing about the personal life of Minos, but it is clear

that he lived in the midst of a civilisation of an advanced kind, in great magnificence, and that his country played a leading part in the eastern Mediterranean, exchanging the products of its industry and art with ancient Egypt, and influencing powerfully the life of the world.

His people seem to have been the precursors of the Phoenician mariner race who

later dominated the sea-borne trade of the world, and it is now believed that the invention of the alphabet and writing, which had been attributed to the Phoenicians, was not by rights theirs, but that they only changed in style the writing of the Minoans. In short, it may be said that a stage in human development



A PICTURE OF DARIUS, FROM PERSEPOLIS

that lies beyond the thought and art of the Greeks had been lost to men's knowledge when Knossos and other Cretan towns were destroved. Indeed, the one personality in that forgotten period that impressed itself on men's minds was a real and great king, Minos by name; and his greatness is shown by the fact that when all his works were buried in the

earth, vague memories of him, dressed up in fanciful forms, were transmitted from generation to generation. So Minos comes to us as a great, though shadowy, king.

There are many students of war who believe that the greatest general who ever lived was not Alexander the Great, or Julius Caesar, or Napoleon Bonaparte, but

Hannibal of Carthage. That leading commercial city was founded in northern Africa, about 822 B.C., near the present site of the city of Tunis, by the Phoenicians. It succeeded Tyre as the mistress of the Mediterranean. As time went on it captured Sicily, Sardinia, and the Balearic Islands, and founded settlements in Madeira, the Canary Islands, and on the west coast of Africa. Then frequent wars followed with Rome, which ended in the conquest of Sicily by the Roman army.

## THE PASSAGE OF THE ALPS WHICH COST HANNIBAL HALF HIS ARMY

As a balance to this loss Carthage invaded Spain with Hamilcar as the general. When he was killed he was succeeded by his son-in-law Hasdrubal, and, on his death, the Carthaginian army elected young Hannibal, son of Hamilcar, as their general. As soon as he was appointed commander-in-chief he completed the conquest of Spain as far as the Ebro, and then planned an attack on Rome.

He could not hope to cross the Mediterranean Sea with an army large enough to capture Rome, so he determined to march from Spain through France, then called Gaul, and cross the Alps into Italy. This wonderful feat he safely accomplished. Carthage itself provided him with comparatively few soldiers, but he recruited his army in Spain, and in Gaul, where Rome had many enemies. The passage of the Alps cost him nearly half his army, but when he reached the plain of northern Italy he repeatedly defeated the Roman armies through superb generalship, and reached the neighbourhood of Rome. He had not, however, with him the means wherewith to besiege the city, and so had to wait for supplies from Carthage. Those supplies never reached him in sufficient amounts to enable him to take Rome; but for fifteen years he remained in Italy, traversing it from end to end, and he only withdrew when he was recalled home by the Carthaginian government.

## THE TERRIBLE YEARS AT THE

Meantime the Romans had crossed to Africa, and were attacking an untrained army, and opposed to him were the victorious veterans of the Roman general Scipio. In that unequal fight Hannibal was defeated, and Carthage was obliged to submit to Rome and pay tribute to her. The Carthaginians, however, made him their chief magistrate, and so well did he

rule that the country began to revive, and Rome began to fear her old enemy afresh, and demanded that he should be surrendered to her. The remainder of his life was spent in passing from country to country chased by the Roman power, and finally, when he was about to be betrayed by a servile king in Asia Minor, he took poison to escape falling into their hands.

The greatness of Hannibal's skill as a soldier is shown by what he achieved with the most slender resources. His life was spent far from home, in enemy lands, without adequate support from his own countrymen. In all probability he would have taken Rome if his brother Hasdrubal had been able to join him in Italy with reinforcements. But the Romans intercepted Hasdrubal and defeated him, and Hannibal only heard of his brother's failure through his head being thrown into the Carthaginian camp.

One of the most remarkable kingly figures that has ever dazzled the eyes of men was the Caliph Haroun-al-Raschid, chief of the Moslem world between 786 A.D. and 809. He now lives in men's minds chiefly through the stories in The Arabian Nights into which he is introduced.

## THE AIR OF SPLENDOUR SURROUNDING A KINGLY TYRANT

Both as ruler and as religious leader he was acknowledged as absolute from India through Asia and northern Africa to the Atlantic Ocean. Early in his life he had showed an aptitude for war, and throughout his reign he was one of the most active of governors, frequently visiting many parts of his dominions; but his wealth and magnificence, his patronage of learning, and his determination to do whatever he pleased have most impressed the world.

Haroun was the completest example of a kingly tyrant. No consideration weighed with him if his vanity was hurt. He rose to worldly greatness through the faithfulness of his friends when he was young, and the more loyal they were to him the more certain was a cruel fate to overtake them if he saw any reason to regard them with jealousy. His wise Vizier Yahya and his dearest friend Jaffar were both sacrificed to his insane jealousy.

All the world knew Haroun-al-Raschid as the world's supreme example of human power and magnificence in his own day. Now he is its greatest proof of the impossibility of uniting unchecked power with justice and true greatness.

The Great Stories of the World That Will Be Told for Ever



### HOW THE MOON CAME TO HAWAII

There was once a King in Hawaii who sent for his court wizard, and said: "Every time my fishermen let down their lines in a certain part of the sea the hooks are cut off. They feel no tug as though a fish were biting, but when they draw up the line it is cut through."

The wizard replied: "They must have been fishing over the country of Lalo-Nana, which lies at the bottom of the sea. A sister and two brothers live there, all far more beautiful than mortals."

"I must see them," cried the King.

The wizard said that the brothers were on a journey, but he would try to entice the woman ashore.

A few nights afterwards a trumpet was blown, and the sound awoke the seamaiden in Lalo-Nana. She left her coral house and her garden of sea-flowers and her luminous fishes to see what it was. To her surprise she saw something like a man hanging midway between the surface and the bottom. She drew near, and found it was only an image suspended by a cord, but it was beautifully carved and richly dressed. Cautiously the sea-maid swam to the surface to see what kind of fishermen were angling with such strange bait. She saw a row of canoes anchored at intervals all the way to the shore, and in each of them was an image.

The sea-maid swam from one to another, admiring their ornaments and clothes in the starlight, for there was no Moon in those days. Perhaps she thought a magician had turned all the islanders to wood. Now it would be safe to explore the forbidden upper world. So she stepped ashore, and followed a line of images through the flowery forest of Hawaii till she came to a little house. Weary with long swimming and walking, the sea-maid sank down to sleep.

She was awakened by the King, who had fallen in love with her and who begged her to be Queen of Hawaii. She consented, and for a long time she was delighted with the wonders of the island. Then she wished to give her husband a present in return for the necklaces and bracelets he had given her.

"Send a diver to my coral house under the sea," she said. "There he will find a casket, which he must bring ashore unopened. In it is a treasure which my brothers and I have guarded for years."

The diver brought the casket to the palace safely, but as soon as the Queen opened it a great shining thing flew out and sailed through the door up to the skies. It was the Moon. There it shone among the stars, but, to the Queen's terror, its reflection shone in the sea as well!

IMAGINATION · CHIVALRY · LEGENDS · GOLDEN DEEDS · FAIRY TALES

"My brothers will know I have lost the treasure," she cried. "They will return to the coral house and find me gone. They will come ashore in a great flood to find me.

"Fear not, Hina," said the King (for Hina was the sea-maid's name). will all go up to the mountains with our cattle and treasure. The sea cannot reach us there."

So the Hawaiians fled to the mountaintops. Soon after a storm arose, and presently a huge tidal wave rushed ashore. Hina saw her two brothers riding on the foam, and heard them calling her. When the flood subsided all the crops were ruined, the houses washed away, and the whole island lay desert.

Everyone was far poorer now, even the King, and from thinking that Hina was the cause of his misfortunes he came to hate her. He made her toil from morn to dusk at the hardest work till her life was slavery, and often as the poor woman laboured she thought, "Ah! If I could only find some place to rest in!"

She dared not go back to the sea for fear of her brothers. She could not escape from her husband on the island. One day, as she was fishing with a net among the rocks that cut her feet, she saw a rainbow bridge stretching to Earth. She understood that the Sun had pity on her, and was showing her this way to escape.

Hina began to climb the rainbow, but as she got nearer to the Sun the great heat scorched her till she could bear no more. She swooned, and slipped from the bridge to the ground.

When she recovered from her fall it was night. She could hear her husband calling her angrily, and knew he would illuse her for the work left undone. At that moment a wonderful thing happened. Moon rainbow appeared.

"Ah, it is very quiet in the Moon!" said Hina. "There I shall be able to rest."

She began to climb the silver bridge. The King came out of the trees and ran up to stop her. He was afraid to climb the magic bridge, but he seized her foot. She wrenched it free, breaking it, and crawled on. At length she reached the cool, silvery Moon country.

There she still lives, lame but happy, and the fairy-like clouds you see drifting round the Moon are of Hina's spinning.

### THE HEROINE OF NOTTINGHAM CASTLE

INE of the brightest stories from the Civil War is that of the defence of Nottingham Castle by Colonel and

Mrs. Lucy Hutchinson.

The king set up his standard on August 22, 1642, at Nottingham, near which town the Hutchinsons lived The whole country was in a ferment, and Henry Ireton, their neighbour and relative, urged them to support the Parliamentarians, which they did. Mr. Hutchinson received a commission as lieutenant-colonel, and the family removed to Nottingham. Soon, as Governor of Nottingham Castle, Colonel Hutchinson had to defend it.

For four years Mrs. Hutchinson was shut up in the castle, acting as surgeon during the siege, tending the sick, supplying food for the big household, and ever cheerful and wise in her counsels.

She shared all her husband's plans, approved his stern refusal of the many attempts to bribe him into submission, and showed in the notes she wrote down at the time that she must have witnessed scenes and undergone anxiety enough to quell the stoutest heart.

There were her little children, too, who

needed her constant care.

Newark, a neighbouring town, was on the Royalist side, and many of the citizens of Nottingham were also Royalists. One of them during the night secretly let the Governor of Newark and six hundred soldiers into the town. Next morning the colonel found himself besieged in his little fortress with eighty men. Enemies were all around, but messengers got through and sent for succour to the garrisons at Derby and Leicester.

On the third day Colonel Hutchinson was invited to parley with the Royalists, and his answer was to hoist a red flag on the tower of the castle. Two more days passed, and then, to their relief, the watchers on the tower saw a party of horsemen galloping to their assistance. As these men drew near the Royalists retreated, but not without a sally from the besieged.

When the war was over Mrs. Hutchinson acted as peacemaker between a band of soldiers preparing to attack the town and the citizens arming for its defence; and later, when the Stuarts came back to power after Cromwell's death, she worked to secure her husband's pardon It was denied, and the brave wife comforted her imprisoned husband until his death.

### STORIES OF THE SAINTS

In early times, in every land, there grew up round the memory of men and women who had been greatly admired stories which made their fame lasting, though the details might be changed. The impression remained, if sometimes it became more legendary than historical. We see it in the rude, fierce heroes of the Northern races, who admired force and bravery; in the poetical imagery of Greece; in the dreamy tales of the religious heroes of the gentler East; in the legends of the great figures of the Age of Chivalry. And as goodness spread, as the gentle power of the Christ-like life was seen in the men and women whom we now call Saints, there grew up many legends around the memory of these saintly characters. Many of them are both beautiful and true, but all are worth knowing. Such lives, founded on fact, but sometimes cast in story form, are the foundation of much of the art of the early painters, and by the beauty of their teaching they have influenced a vast multitude of lives.

#### THE PATRON SAINT OF SHOEMAKERS

THE patron saint of shoemakers is St. Crispin, and the reason is this. In the third century there lived at Soissons two brothers who were called Crispin and Crispinianus.

They were teachers of Christianity; but they thought it right to earn their own living, and this they did by making shoes. They took money from the well-to-do, but charged the poor nothing.

Their fame spread so that many of the people in Gaul visited them, and learned from them the story of Christ's love. At last there came to Soissons the heathen emperor, and he commanded that these shoemakers should be arrested. They were tried, tortured, and afterwards beheaded.

Whenever you see the picture of a saint with the palm of victory in one hand and an awl in the other you may know it is either Crispin or Crispinianus, the patron saint of shoemakers.

#### SANTA CLAUS

A Young and rich man was walking one day through the streets of his native town when he heard sounds of lamentation from the house of a nobleman whose money was all lost, and who was now living on the verge of starvation with his three daughters. The young man listened, and he heard a girl's voice say: "Father, let us go into the streets and beg, for it is hard to starve."

Then he heard the father answer: "Not just yet. Not tonight. Let us wait one more night. I will pray God again to save my children from such disgrace."

Nicholas hurried home. Among the treasures he had inherited from his father were three bars of solid gold. He took one of these bars at night to the house of the poor man, and, finding an open window, which he could just reach by standing on tiptoe, he thrust in the bar of gold. He came a second night, and left the second bar; and the third

night, and left the third bar. But the third night he was discovered, and the poor father, who believed the gold had come from Heaven, knelt at his feet. Nicholas lifted him up, and said:

"Give thanks to God, for it was He

who sent me to you."

This and many another splendid gift of love did Nicholas in the name of God, and always in secret, so that he is called St. Nicholas, and children believe that at Christmas he fills their stockings with gifts. They know him as Santa Claus.

#### THE LITTLE POOR MAN OF ASSISI

THERE lived in the town of Assisi, in Italy, in the thirteenth century, the son of a very wealthy merchant, and his name was Francis.

He was a handsome, bright-eyed, merryhearted boy, and as he grew up to manhood he lived only for pleasure and excitement. He became famous for the wild way in which he spent his money, and even set himself to rival the sons of noblemen in grandeur and vanity.

But in the midst of his wild and selfish life there came to him a voice from heaven, and he saw all at once how

foolish he had been.

Francis gave up his mad ways and set himself to serve God. He tore off all his rich clothes and lived like a beggar. His father was angry. His old companions pelted him with mud. Nearly everybody thought he was mad. But some people began to perceive that a great change for good had indeed come over Francis. For he did not rave, he did not shout; he was the same cheerful, brighteyed, happy-minded man, but with this difference—that all his cheerfulness came from the love of God.

And this was the secret of St. Francis. He adored poverty. If, said he, Christ became a poor carpenter's son for us surely we ought to make ourselves poor for Him. He spoke of poverty as a lady, and said he had married this beautiful

lady of poverty. He wore a rough brown dress, ate simple food, and spent all his time in teaching people not to desire riches and greatness, but to desire poverty; that is to say, to love God so much that everything rich and grand and magnificent appears silly and trivial and unworthy.

He loved everything that God has made. He hated cruelty. He told people to love "our sisters the birds"; he spoke of the wind as "our brother," and of the rain as "our sister." He felt that all things are brothers and sisters, and that God is the Father of all.

For six hundred years men have loved St. Francis, whom we call the Little Poor Man of Assisi. He is dear to us for many reasons; but perhaps we are most grateful to him for just this simple teaching: that we should never be unkind to bird or beast, but should spread the love of God among every living thing.

#### SWEET SINGER CECILIA THE

THERE was a strange scene one day in Rome in the early days of Christians. A handsome young Roman soldier, Valerian, had just brought home his bride, a beautiful Roman girl, Cecilia. The festivities were over. The guests had all gone. Valerian was alone with his bride. Then Cecilia said to him:

"I am your wife, but I do not belong" to you. I belong to Christ. All my life I have given myself to Christ, and I have an angel who will guard me from evil.'

Valerian was much surprised, for he had no idea that the noble parents of Cecilia were among the despised Christians. be a Christian in Rome meant death.

"Show me this angel," he said; "then I shall know if what you say is true."

She told him that he could not see the angel until he had learned to love Christ; and she bade him go along the Appian Way, outside the walls of Rome, and ask the people there to direct him to Urban the Good. This Valerian did, and he

found Urban underground in the Cata-Urban told him the story of combs. Jesus, and Valerian believed and was baptised. So happy was he in his new faith that he persuaded his brother also, and these two, with the beautiful Cecilia. spent their lives in doing good. The home was very happy, for Cecilia had a lovely voice, and she sang songs of praise which thrilled the hearts of the two brothers, and they knew that after death they would all meet in a happier world.

Soon it became known that Valerian and his brother were Christians, and they were put to death. But Cecilia became bolder in preaching, and was brought before the governor.

"What sort of a woman are you?" he

asked roughly. "And what is your name?"
"I am a Roman lady," she replied proudly. "Among men I am known as Cecilia, but my name is Christian." And for her faith, so courageously confessed, she was condemned to a cruel death.

### THE STRONG MAN WHO CARRIED THE POOR

An old hermit was sitting in his cell one day when there appeared before him a mighty man, who said his name was Offero, and told him a strange story.

"I was strong from my youth up," he said, "and beat every comer at games. But I wearied of these idle things. A voice within me drove me forth, and would not let me be satisfied.

"So I put on my armour and took my sword, and journeyed till I came to the palace of the greatest king on Earth. Him I served till one day I saw him make a sign on his forehead whenever the minstrel who sang before him made mention of the Evil One. I would not serve him longer because he feared the Evil One, and was not a brave man.

"So I journeyed on, till in the centre of a black forest I found Satan keeping his court. 'Art thou the bravest king on Earth?' I asked, and as he said that he feared nothing I took service with him.

"But one day I saw him cower from a little wooden cross set up on the highway, and I challenged him, saying: 'What! are you the bravest man on Earth, and fear a piece of wood?' 'It is not the cross I fear,' said he, 'but Him who once hung there.

"So I left him, and have ever since striven to discover who is this Christ that hung upon the cross. And now the voice within me has brought me to you. Tell me, I pray you, the story of Christ.'

The hermit told him, and the giant swore that he would serve only Christ henceforth. The hermit said that Christ did not wish men to fight for Him, but to fight against evil by gentle living.

#### STORIES OF THE SAINTS

Offero said that might well be true; but God had not given him great muscular strength for nothing, and that strength he would devote to Christ.

So the hermit took him to the banks of a wide and angry river, and bade him dwell there and help poor people across. This pleased Offero well, and he built a hut, and tore up a pine tree for a staff; and when poor people wanted to cross the angry flood he carried them over, and said he did it for the love of God.

One wild night a child came to him to be carried across, and Offero set him on his shoulder and waded into the stream. But as he went the child grew heavier and heavier, so that Offero's knees bent under him. Yet he got across, and when he set the child down he said:

"How is it that you are the heaviest

burden I ever carried?'

Then the child became glorious with a wondrous light, and said to Offero:

"Heavy did I seem because I bear the sins and sorrows of the world. I am Christ. And because thou hast been kind to the weak, and borne Christ on thy shoulders, I will call thee Christopher."

Then the Child vanished, and Christ-

opher kneeled in the darkness.

### THE GIRL WHO DEFIED AN EMPEROR

ONE of the commonest sights on the Fifth of November is the Catherine-wheel. It is named after Saint Catherine, who was bound to a wheel. Catherine of Alexandria was the cleverest girl of her day in Egypt. She lived in the fourth century, when most of the people about her were heathen. One day she heard that the Emperor Maximinus had ordered that many poor people should be slain as a sacrifice to the idols the emperor worshipped, and Catherine went to his palace and condemned his cruelty.

It was in vain that he tried to argue with her. She was too clever for him, and what she said was too just to be affected by anything he could urge. So the emperor sent for his wise men to argue with her, but she defeated them all in a great debate, and many people

became Christians on hearing her wonderful words. This made the emperor angry, and he ordered that she should be put to death—tortured on a wheel.

What this wheel was like we do not know. One account says that it was shaped like an ordinary wheel but armed with spikes. Another account says that it was not one wheel, but four wheels joined. Whatever the nature of the wheel, poor Catherine was bound to it.

But a wonderful thing happened. No sooner had she been tied to the wheel than an angel appeared and set her free.

He broke the wheel in pieces.

But the emperor was not content. He had Catherine beaten with scourges, and cast her into a dungeon without food; and at the end of twelve days she was led forth and beheaded.

### JOHN OF THE GOLDEN VOICE

From out the dimness of the far distant past there comes to us the fame of two very wonderful orators who impressed men so deeply that the echo of their voices seems to reach us still. Those orators were Demosthenes, a heathen, but a highly civilised Greek, and John of Antioch, who was welcomed into the list of Christian saints, and who is for ever known as Chrysostom, meaning the golden-mouthed.

John Chrysostom's life falls into about five chapters, and all of them are honourable. First he was a good boy, taught by a pious mother, and so had the pure joy of growing up sweet in spirit. Then he was educated in oratory that he might be a lawyer. But his mind turned naturally towards religion, and he went into solitude to think and pray and prepare himself for Christian work.

Returning presently to the crowds of men, he became a preacher who charmed all ears, and at last he was made archbishop of Constantinople.

And now, having power, he became a great reformer and a generous helper of the poor and suffering. He lived a pure life himself and demanded it from others, especially from those who were in positions of influence, like kings and priests. If the lives of such people were on a low level he made them uncomfortable by very plain speech.

For this he was at last banished into the wilderness of Asia Minor; but that did not trouble him, for there he found people who needed his preaching. And everywhere were people who wished to hear him preach, and demanded that he should be restored to the world. His persecutors

gave way and pretended to bring him back to freedom, but they treated him so

badly that he died on the way.

Yet still Constantinople, which knew him best, asked for him, and in 438 his persecuted body was taken to the city, and his name was enrolled among the saints.

Chrysostom wrote much as well as spoke much. His character was of great loveliness all through his life. Here is a deep and wise saying of his that deserves to be written in letters of gold, for it bears thinking about for a lifetime: No man can hurt him who will not hurt himself.

### THE MARTYR GIRL OF SICILY

JUINTIANUS, the Governor of Sicily, was in love with a very beautiful Catanian girl named Agatha.

She was proudly bred and of rich

parentage; so that when she avoided him he thought she was moved to do so by her pride. But presently he discovered the truth. Agatha was a Christian.

The governor had her brought before him. For a long time he pleaded with her to give up her religion; but she would not. Then the love of Quintianus turned to a hideous hatred. He had this beautiful girl cast into a dungeon. Then she was stretched on the rack; but she clung to Christ and would not deny her faith.

Then the monster who had been her lover attacked her with his sword, and she was thrown back into her prison terribly wounded. No doctor was allowed to see her, no nurse to tend her. As she lay on the ground of her cell no cry or moan escaped her lips; and she sighed out her soul in a great peace.

### THE BOY WHO FLED FROM ROME

Many years ago there was a wealthy family in Italy, and the only son was the hero of the house. His parents wished him to become a judge, and they

sent him to Rome to study law.

But the boy, whose name was Benedict, was shocked by the luxury that met his eyes in Rome, and at last he ran away and hid in the hills, determined to serve God in loneliness. But his old nurse, who loved him dearly, followed Benedict, and waited on him.

For a long time he lived in this manner, until it seemed to him wrong that he should let this old nurse fetch him food, and

once more he ran away.

This time he travelled far into the mountains, and lived in a wild cave. Many years passed, and people heard

of the holy man living alone in a cave and visited him. A company of monks were so impressed by his preaching that they asked him to come and rule over them, and this he agreed to do. But Benedict found that the monks lived too easily, and he introduced a greater sternness into their lives. Then the monks repented that they had ever asked him to be their superior, and Benedict returned to his cave. Many holy men came to live near him, and he built houses for them to live in. These monks had to desire three things—poverty, purity, and obedience—and they had to work seven hours every day with their hands.

St. Benedict caught a fever in nursing the poor. He was borne into the chapel, and died before the altar he loved.

#### URSULA AND THE THOUSAND MAIDENS

WONDERFUL sight was seen one day in Brittany. In a great meadow were gathered together ten thousand maidens from Britain, and on a throne was seated the Princess Ursula of Brit-

tany, telling the story of Jesus.

Ursula was the only daughter of the King of Brittany, and so lovely that the story of her beauty had passed into all lands. Prince Conan of Britain desired her for his wife, and she told him to send her ten of his great ladies, each escorted by a thousand maidens, and to wait for her three years. Then she taught these maidens Christianity, and set out with them to visit foreign lands.

Ursula and her company of ladies made a wonderful impression wherever they went, and many people became Christians because of them. And Prince Conan followed her, with many bishops and clergy, including even the Pope of Rome.

But in her pilgrimage Ursula came to a place where the people rose against her, and slew the bishops and clergy, and Prince Conan and his knights, and all the

women except herself.

So Ursula was brought before the king, who declared that he would marry her but she spoke to him so truly of the wicked things he had done that he seized an arrow and with it pierced her heart.

## ALTHAEA AND THE BURNING BRAND

ALTHAEA, Queen of Calydon, lay with her new-born babe at her side. It was night, and the room was lit only by a wood fire. The nurse slumbered, but the mother lay awake thinking of the little son, who was to be called Meleager.

All at once she saw three misty shapes in the room. As they grew clearer she saw that they were old women, crowned with narcissus, and guessed that they must be the three Fates who preside over man's

birth and death.

"He shall be valorous and great,"

whispered one of the old women.

"He shall be stronger than mortal men," said another.

'He shall live as long as that firebrand is unconsumed," prophesied the last.

Then they faded away.

Althaea rose with all haste, drew the stick from the fire, and put out the flames with water. Then she locked it away as the most precious treasure in the whole kingdom, for it was her son's life.

Meleager grew up as the Fates had foretold, a famous hero. He was one of the He defeated his father's Argonauts. enemies when they invaded Calydon. He finally slew the monster boar, whose hunting is one of the great events in

mythological history.

All the chieftains of Greece were at the hunting, including Jason, Theseus, Laertes, the father of Ulysses, Castor and Pollux, the sons of Jupiter, and Althaea's dearlyloved brothers Toxeus and Plexippus. There was also in the party Princess Atalanta, the huntress and swift athlete, whom Meleager loved. She was the first to wound the Calydonian boar, and when Meleager finally slew it he gave her the head and hide for trophies.

Toxeus and Plexippus were angry at such honour being shown a woman. They had as much right as she to the monster's relics, they thought. Together they went to Atalanta's tent, and tried to take the trophies by force. Atalanta defended her prize with the sword, and called on Meleager for help. He ran up, and, seeing his beloved attacked, became beside himself with rage. In the scuffle that followed he killed both his uncles.

News of the boar's death had reached Calydon already, and Althaea went to the temple to give thanks. On her way she met two biers carried by slaves whose

faces were familiar.

Who are the dead? "she asked.

"Your brothers Toxeus and Plexippus," answered an old servant of the princes,

slain by your son Meleager."

At this such grief and wrath seized Althaea that she forgot all else. hastened home, unlocked the chest where she kept the firebrand, and flung it on the The stick was dry, and burned in a few seconds. As it fell to ashes Meleager, returning to Calydon in triumph, fell dead on his horse's neck.

When Althaea's fury had passed a great terror seized her. She clung to the hope that perhaps after all she had dreamed the prophecy, and the firebrand was only ordinary wood. But soon messengers came with the news that Meleager was dead.

Now Althaea knew that she had loved her son above everything in life. In utterdespair she slew herself, so that her ghost might seek his and crave its pardon.

#### THE CHILDREN OF THE SKY

In the morning of the world an angel was sent on a message to a holy man dwelling in a desert in Persia. But as the angel was flying through the air he saw a beautiful Persian girl sitting by the side of a well and braiding her hair with blue forget-me-nots. He came down and made love to her, and for a while they lived very happily together.

Suddenly the angel remembered that he had not delivered the message with which he had been entrusted. He flew back to Heaven to ask pardon for his forgetfulness, but he found that the gate was closed For a long time he stood by: the shut gate weeping, and then the Archangel Gabriel appeared, and said,

"You must people the Earth with the Children of the Sky before you can bring a daughter of the Earth into Heaven."

The angel did not understand what this meant, and asked his beautiful bride:

if she could explain it.

"Yes," she replied, taking some of the flowers from her hair. "These lovely little blue forget-me-nots, which reflect the exquisite colour of Heaven, are the Child-

ren of the Sky.'

So the angel and his bride wandered hand in hand over the Earth, and planted forget-me-nots in every country. Then, when their task was ended, the angel took his bride in his arms and carried her up to the gate of Heaven.

## DAMON ET PYTHIAS

This is a French translation of the story told in English on page 4365

ENYS était un célèbre tyran qui régnait à Syracuse, ville de Sicile. Quiconque avait le malheur de lui déplaire était mis à mort.

La colère du tyran s'abattit un jour sur un jeune homme nommé Pythias, qui s'était plaint de la cruauté de Denys, et qui fut condamné à mort. Il demanda la permission d'aller voir sa femme et ses enfants, mais Denys se moqua de lui, pensant: "Une fois que tu seras hors de ma portée, tu ne reviendras sûrement pas."

Pythias dit qu'il avait un ami qui se porterait garant de son retour, et son ami Damon s'offrit comme otage pour Pythias. Si Pythias ne revenait pas, disait-il, il mourrait à la place de son ami.

Le tyran fut surpris qu'un homme aimât son ami à un tel degré, et il accorda à Pythias six heures pour aller voir sa femme et ses enfants.

Pythias s'attendait à être de retour au bout de quatre heures, mais les quatre heures s'écoulèrent et Pythias ne revenait pas. Cinq heures, presque six passèrent, et toujours aucun signe de lui. L'homme le plus heureux de toute la prison était Damon, qui espérait positivement que Pythias ne reviendrait pas, car il désirait vivement souffrir à sa place, et sauver son ami, par égard pour sa femme et ses

enfants. Enfin l'aube du jour fatal parut, l'heure approcha, et Denys vint voir mourir son prisonnier.

Tranquillement, courageusement, Damon se prépara au supplice. Son ami, disait-il, avait eu quelque accident, peut-être était-il malade. Cependant, presque au moment même de l'exécution, Pythias arriva et embrassa son ami.

Il était fatigué, ses vêtements étaient poudreux. Son cheval avait été tué, il lui avait fallu s'en procurer un autre; mais, en allant grand train, il était arrivé juste à temps pour empêcher Damon de mourir à sa place. Mais Damon ne l'entendait pas ainsi. Il supplia Pythias, il supplia Denys, de lui permettre de subir le supplice au lieu de son ami.

Jamais Denys n'avait été témoin de pareille amitié. C'était quelque chose de grandiose, dont il ne soupçonnait pas l'existence, que cette amitié qui accueillait la mort avec joie, si la mort devait venir en aide à son ami. Son cœur s'émut; il voulut que de tels hommes devinssent ses amis à lui.

Il s'approcha de Damon et de Pythias, occupés à se disputer, chacun avide de donner sa vie pour l'autre. Denys les prit par la main, les mit en liberté, et les supplia de lui permettre de partager leur amitié.

#### COULD NOT BE LOST THE BABY WHO

NE of the curiously interesting little stories of the Great War is this tale of a baby who could not be lost, a princeling, passed from hand to hand through a series of golden deeds, till he found himself at home once more.

Prince Vladzis Geodric was but a babe in arms when his Galician father, a connection of the then Royal House of Austria, left his home to fight for Austria against Russia.

But the Russian army in its advance swept over Galicia, beyond the castle where the baby was born, and his mother fled with him towards safety, as she hoped. When the flight grew into panic the babe was left behind, and, as he lay wailing in a ditch, was picked up by a kind-hearted Russian officer, and by him handed over to a Russian lady, who adopted the tiny waif and took him to her distant home at Tiflis, in Georgia, far away from the din and strife of battles.

There the little fellow, as well became such a lucky baby, had his photograph softened by the sight of a little child.

taken, and, as photographs will, it found its way into a Russian illustrated paper.

Presently the tide of war changed, and it was the Russians who were falling back and being taken prisoners. One of the prisoners had in his pocket the picture paper with the child's portrait when he was taken before an Austrian officer to be questioned. That officer who opened the prisoner's newspaper was Prince Cyril Geodric, the father of the little lost Vladzis.

Even in war there are pleasant ways of being frendly when hearts are touched, and the end of this story is happy. Through the Swedish Court the Austrian prince managed to send a message to the Georgian lady who was rearing the lucky lad so kindly, and presently the little boy was on his way home along the warcrowded railways, under the charge of a special courier, and with two attentive nurses to care for him.

All along, it will be seen, hearts were

## KING ARTHUR'S RIDDLE

ONE Christmastide, when King Arthur's Court was at the height of its glory, a lady came into the banquet hall crying

for vengeance.

Kneeling before the King, she told how she and her betrothed were riding over the moor when they came to a great castle by a lake. A tall knight came out, and challenged the new-comer to combat; but the place was enchanted ground, and the lady's sweetheart could not draw his sword. The knight of the castle dragged him from the saddle like a child, and carried him into the castle, a prisoner. When the lady ran to her lover's aid she was knocked down by a buffet on the face.

"Go," cried the churlish knight, "go to Carlisle and ask vengeance from King Arthur. Tell him many of his knights are rotting in my dungeon now, and if he dare venture in the shade of my castle he

shall join them."

King Arthur leaped to his feet, and swore he would not taste food or drink again till

he had fought this insolent knave.

At dawn next day he set off alone. The poor lady had told him how to find the castle, which stood on the heath by Tarn Wathelan. When King Arthur reached the place there was no sign of life. He drew his sword Excalibur and blew his bugle three times. Then he shouted:

"Come forth and fight, Knight of the Castle! King Arthur has come to punish

you for your crimes."

Instantly the door of the castle opened, and the enchantment fell on the King. Excalibur clattered to the ground from his helpless hand, the reins dropped on his horse's neck. The knight of the castle came out, swinging his great club, and laughing ironically.

"You are my prisoner, King," he said, "but I will give you one chance of ransoming yourself. Swear by the Rood to return in a year's time and tell me what thing it is that all women most desire, and I will let

you go now."

King Arthur, his head bowed in shame, vowed to return. The knight went in, the door shut, and strength again returned

to the King.

Mournfully he rode away, but not to Carlisle. He gave a shepherd some gold, and bade him take a message to Queen Guinevere to say that he was going on a long journey. Then he rode north and south, east and west, asking every woman he met the knight's riddle.

Nearly every one made a different answer, according to whether they were religious or worldly, proud or loving, covetous or charitable. The King wrote down all the answers, but he did not know which of them was right, and he grew more miserable every day as the seasons sped, and Christmas drew near.

It was a sad man who rode through the snow-clad woods toward the enchanted castle. All at once he saw a patch of crimson through the trees. A woman sat between an oak and a holly. The King drew near to ask his riddle, but when he saw the face of the woman in the red gown his heart turned cold, fearing she was a witch. She had one blear eye, ragged grey hair, a crooked nose, a long mouth which showed stumps of teeth, a nutcracker chin, and withered cheeks, brown as a beech leaf in autumn.

"All hail, King Arthur!" she cried. "Would you like to know what thing it is

that all women most desire?"

The King was quite certain now that

she was a witch.

"I will tell you, and save your life," said the old hag, "if you promise to find me a brave, courteous, and handsome husband from the knights of your Court."

King Arthur promised, for he was fain to live on in the light of the Sun and to see his wife and home again. The old woman gave him the answer. Then he rode on to the castle by Tarn Wathelan, and sounded his bugle. The knight came out, swinging the keys of his dungeon.

"Well, O punctual King!" he asked, what is it that all women most desire

in the world?"

"Their own way," replied the King. At this the knight gave a cry of wrath. "You are ransomed," he cried, "but some witch has helped you to find the answer,

and she shall burn for it."

King Arthur hastened back to Carlisle, where he was met with great rejoicings. But he would not speak of his absence, and was heavy at heart. At last his nephew Sir Gawain drew him on one side, and begged to know the cause of the King's sorrow. When he had heard the story he said: "But why are you mournful, Uncle?"

"Because I cannot keep my promise to the old woman," said the King. "No one

would marry her."

"I will if no one else will," said Gawain; "you shall not be dishonoured," The King thanked him heartily. Next day he called for a hunting party, and led them to the wood near Tarn Wathelan. As uncle and nephew rode through the woods they suddenly heard shouts of laughter from some knights who were on ahead. They hastened up, and found Sir Kaye and a few others jeering at the old woman in the crimson robe sitting between the holly and the oak.

"By my fay," cried Sir Kaye, "here is a pretty wood nymph! Here is a mouth red and sweet as a wild strawberry! Here is a damsel who is bound to set all the

shepherds' hearts aching!"

"Do not mock this woman," said the King; "she saved my life, and I am pledged to grant her a boon. Which of my knights will redeem my promise and marry her?"

One and all drew back muttering, "She is eighty years old," "She is lame," "She is humpbacked." The old woman began to weep at their scorn and loathing. Then Gawain knelt and asked her to be his bride. She smiled at him with her dreadful mouth, and said, "Noblest of knights, heaven will reward your chivalry."

The company rode back to Carlisle, Gawain bearing the old hag in front of

him on his horse.

Guinevere was her lady-in-waiting at the bridal, and Arthur was the groomsman. There was a great feast, and afterwards the bridal pair led the dance. Gawain's grace and courtesy made men sigh as he guided the limping old crone through the stately measure. At length the bridesmaids led her away to rest. Gawain sat mournfully among the revellers, who dared not mock his wife aloud, but whispered many a cruel jest about her behind his back.

Presently Gawaine went to his wife's room. She was sitting by the fire. As Gawain entered a log fell, the flame blazed up, and he saw a beautiful young maiden. As he gazed, speechless, she said:

"You are silent, husband, at the sight of your own work. My stepmother, who is a witch, cast an enchantment upon me, which by your chivalry is half broken. Henceforth I may be myself, either by day or by night, and an old hag the rest of the time. Choose which it shall be."

Gawain thought at first that he would like her to be beautiful in the daytime, at tournaments and hawking parties; afterwards he thought he would like her to be beautiful by torchlight, when the minstrels sang, and kinsmen gathered round the fire. But at last he said: "Choose thyself; thou hast the right, and thou art wiser than I."

At this she clapped her hands and cried: "Now is the enchantment quite broken, and I shall be myself for evermore!"

So King Arthur was ransomed, Sir Gawain won a lovely wife, and the lady had her own way.

### HERO AND LEANDER

When Hero was a little golden-haired girl her parents dedicated her to be a priestess in the temple of Venus at Sestus. There she grew up, very lovely, and content with her solemn duties.

But one day she noticed among the worshippers a dark and handsome youth who looked a king among athletes. She learned that his name was Leander, and that he dwelled across the strait, in Abydus. After that Leander often came with offerings for the shrine, and they fell in love. Then, for the first time, Hero understood how her parents had wronged her in childhood. She was bound to her service in the temple. She could not marry. If she were suspected of loving Leander she would suffer a terrible death.

Yet the young lovers could not live without even speaking to each other. At nightfall Leander would swim the Hellespont, while Hero held a torch on the shore to guide him. Every night they would sit in the lee of the rocks, talking of their separate lives. None knew of these secret meetings save one friend of Leander's.

A stormy night came. The sea ran high. No other man would have attempted the crossing, but Hero saw a lantern waved three times on the opposite shore and she knew Leander was coming to her. She lit her torch, and in the hours that followed she had to relight it often, for the tempest grew more and more boisterous. Drenched to the skin and agonised with suspense, she watched the white foam tops of that black sea all through the night. Leander never came.

She tried to think that, finding the sea too rough, he had wisely turned back to Abydus, but soon news was brought that his dead body had been washed up. Then Hero ran to the highest cliff near Sestus

and flung herself into the sea.

## THE LEGENDS OF CHARLEMAGNE

A great number of legends grew up in the Middle Ages around the mighty figure of Charlemagne, the famous emperor whose fame spread to all parts of the known world about the end of the ninth century. We read of him on page 2521. Here we give a few of these stories which were once so well known.

#### HOW ROLAND GOT HIS COAT-OF-ARMS

THE most famous of all the paladins, the knightly champions of Charlemagne, was Roland, Shakespeare's Child Roland, who to the dark tower came.

He was the son of a very great knight related to the Emperor, but, having married Charlemagne's sister secretly, the knight was banished from France, and wandered as a beggar, with his wife, till he came to Sutri, in Italy. There the couple were too poor to have a home, so they took refuge in a cave, and it was in this cave that Roland was born.

He was a fine boy, stronger than any of the other boys in the district, and he had many knightly graces; but his parents were so poor that he never had enough clothes and was often hungry.

He was a great favourite with all the boys around, and though he had thrashed Oliver, the son of the governor of the town, in a boyish quarrel, they became close companions, and their friendship lasted through life.

One day four boys, knowing how ill-clad poor Roland was, took pity on him and brought him some cloth. Two brought white cloth and two red, and when Roland became a famous knight, and acquired a coat-of-arms, he remembered the kindness of his boy friends, and had his coat made with quarterings of red and white as a reminder of their kind act.

#### THE EMPEROR'S DINNER

Roland, when a boy, was very distressed when he saw his parents hungry, and one day when his mother had had nothing to eat he heard that Charlemagne, who was on his way to Rome, was dining in public at Sutri.

He went to the place of banqueting, and there saw a right royal feast, with abundance of food, far more than the party could ever consume.

"Why should not my mother have some of this?" he thought; "she is of royal birth;" and without any further hesitation he rushed upon the party, and, quickly seizing as much food as he could carry, ran off with it to the cave.

Charlemagne ordered three knights to follow the boy, who, when they were about to enter the cave, would have cudgelled them had not his mother restrained him. The knights, learning who she was, promised to obtain her pardon from the Emperor, and this they speedily did.

Roland was received into favour and returned with Charlemagne to France, where he very soon became the most powerful supporter of the throne and one of the greatest champions of Christendom.

#### ROLAND DEFEATS THE GIANT

THE giant Ferragus was of enormous strength, with a skin so tough that no sword could penetrate it. That was why the Christian knights feared him, for he used to seize his adversaries and bear them off in his arms; and, no matter how true their steel, they could never manage to wound him.

Roland, for all his skill, could only just keep out of the giant's clutches, and when after long fighting Ferragus grew weary, and offered a truce, it was agreed to.

The giant lay down on the ground and fell asleep, and, of course, no Christian knight would take advantage of him then, for the laws of chivalry were very strict. Roland saw how uncomfortably the giant lay for lack of a pillow, so, taking pity on him, he found a smooth stone and placed it under the sleeper's head.

After a time Ferragus woke up, greatly refreshed by his sleep: Then, seeing what Roland had done for him, he became sociable, though still very boastful, and told how every part of his body was invulnerable except the middle of his breast.

Soon the truce was up, and the fighting was resumed, when Roland, remembering what he had learned, pierced the giant in his vulnerable spot.

Great was the joy of the Christian warriors when they saw that their powerful foe was dead and would no longer be able to do them any harm.

#### A ROLAND FOR AN OLIVER

CUÉRIN DE MONTGLAVE, the lord of Vienne, quarrelled with Charlemagne, and war broke out between them. But as Marsilius, the King of Spain, was advancing to invade France Charlemagne agreed to decide the quarrel with Guérin by means of single combat between two knights, one being selected by each side.

Guérin was an old man, but when a knight was to be chosen by lot to champion

his cause he had his name put with those of his sons and grandsons into a helmet. The name drawn was that of Oliver, and on Charlemagne's side Roland was chosen.

Fully armed, the two men met on an island in the Rhone, and neither knew who the other was. At the first onset both lances were broken, so the warriors dismounted and fought with swords. Never had such a fight been seen. For two hours or more the knights battled fiercely, neither showing any sign of weariness, but at last Roland struck Oliver's shield so furiously that his trusty sword Durindana was buried in it, and could not be withdrawn. At the same moment Oliver thrust with so much vigour at Roland's breastplate that the blade snapped off short at the handle.

Then, weaponless, the two brave men rushed together, and each tore off the other's helmet. Their amazement was great when they recognised one another, and for some moments neither could move. The next minute they ran into one another's arms, Roland crying, "I am conquered," and Oliver at the same moment crying out, "I yield."

The other knights crowded round and acclaimed them equals in bravery and glory, and ever since to give a Roland for an Oliver has meant a contest in which the give and take is equal.

Soon after Charlemagne's quarrel with Guérin was settled, and the Emperor was then at liberty to march against Marsilius with all his knights.

RINALDO CONQUERED BAYARD RINALDO, or Renaud, was the cousin of Roland, whose exploits he longed to rival. On the day that his uncle, the Emperor, gave him the honour of knighthood he vowed that he would never wear a sword till he had wrested one from some famous knight.

But first of all he must have a horse, and he determined that he would conquer the famous steed Bayard, which was formerly owned by Amadis of Gaul, but was now roaming at large in the Forest of Arden, wild and untamed.

To attack this horse men said meant certain death, but Rinaldo plunged bravely into the forest, where he met and fought a Saracen knight named Isolier. Rinaldo proved the better man, but when they were about to renew the combat a peasant ran forward to say that Bayard was near.

The two knights became friends, and determined to meet the fierce horse together. Bayard came rushing through the forest, and first attacked Isolier, who received him on his lance; but the spear snapped in two. Then the knight drew his sword and struck at the horse. But he did not know that the animal's skin was too tough for the keenest sword to make any impression upon. At last the terrible horse ran at the Saracen knight, who fell to the ground lifeless.

Rinaldo's turn had now come, and for a long time a fierce fight went on between knight and horse, neither gaining any advantage. But by chance Bayard's hoof was caught between the branches of an oak, and, seizing his opportunity, Rinaldo sprang forward, put forth all his strength, and hurled the horse to the ground.

Directly Bayard touched the ground his rage subsided, and he became gentle and quiet. Then Rinaldo stroked him, and, putting a saddle on his back, rode back on him to Charlemagne's Court, where he became a great and famous paladin.

### THE WATERS OF OBLIVION

ROLAND, having fallen in love with Angelica, the beautiful daughter of the King of Cathay, whom he had once found sleeping in a field of lilies and roses, went to her father's Court in search of her. Leaving Charlemagne's camp, he travelled long in the direction of the East, making inquiries everywhere, but all in vain.

One day he arrived at a bridge under which flowed a foaming river, and there a maiden met him and offered him a goblet of the sparkling water. She told him it was the custom for all travellers to drink of the waters of the river, and Roland thereupon tossed off the cup. But no sooner had he done so than he became dizzy, and, forgetting the object of his journey, followed the maiden into a magnificent palace, where there were many other knights gathered together.

These, like Roland, had all drunk of the Cup of Oblivion which had been offered them by the maiden at the bridge, and had completely forgotten the quests on which they had set out.

Roland might have remained in the palace for ever had not Angelica found her way thither, and, by means of a magic ring, disenchanted him and the other knights, so that they all regained their memories and continued their journeys,

## THE WASPS

This is the idea of a story in one of the plays of Aristophanes, the dramatist of ancient Greece.

BDELYCLEON was a fashionable youth whose father was a great trial to him. Instead of leading a life of dignified ease, devoted to art and learning, as he should have done, Philocleon spent all day and every day in the law courts.

He was one of the dicasts whose votes, in the shape of shells, were cast either into the death urn or the mercy urn, and

decided the defendant's fate.

For their services the dicasts were paid three obols each. They loved their importance, the prayers of relatives who thronged the gates begging for mercy, and the fear they inspired. Most of them were of a vindictive nature, and The Wasps was no bad name for them.

At length Philocleon's love of law suits reached a mania. He was shabby in his dress, restless in his sleep, and never at home from one year's end to another. To save him from becoming a laughing-stock his son locked him up, for argument was of no avail whatever. But Philocleon would jump out of wind ws and climb up

chimneys to escape, and then run back immediately to the law courts.

At length Bdelycleon hit upon the idea of turning his house into a court, and making his father judge. Two jars did duty for the urns of death and of mercy. A hurdle did for the judgment bar. Slaves were employed in getting up cases.

The first case Philocleon tried was one of stealing. Labes the mastiff was accused of cating a Sicilian cheese. His puppies were brought into court to move the judge to pity. A plate, a porringer, and a cheese-scraper were called for the defence. Labes's counsel described how faithfully he kept wolves and robbers from the door. He also pleaded youth, saying that Labes did not know the first rules of music, with which Greek education always began. All in vain: Philocleon would have him hanged. But he dropped his cockle-shell into the urn of mercy by mistake.

When the malicious old man discovered what a royal chance he had lost with his solitary supreme vote he fell into such a passion of rage that he was never known

to speak of a law suit again.

### TRIPTOLEMUS

ONE day the daughters of King Celeus saw an old woman weeping by the roadside. Their father had taught them to have compassionate hearts, so they asked her kindly what ailed her.

"My daughter has been stolen from me!" cried the old woman. "I have wandered far and wide to find her, and I

think I shall never see her again."

"You are worn out with travelling," said the princesses. "Come back with us to Eleusis. After you have rested you will be stronger to continue your search. Besides, you may hear tidings of your daughter, for all tidings are sure to come to our father's house."

The old woman was touched by their kindness, and returned with them. Her sad story moved the queen to say, "She shall be my baby's nurse. In caring for him she will forget her own sorrow."

Triptolemus was the name of the little baby, who was a sickly weakling. His fretful wails ceased as soon as the old woman took him in her arms. She kissed the little yellow face, and a rosy flush spread over it.

That night the queen lay awake. She began to upbraid herself for letting a

stranger have charge of her baby. She rose and stole quietly to the nursery.

There she saw a dreadful thing. The old woman was muttering charms over the baby, who lay on a brazier of burning coals.

The queen shrieked and snatched up her child, who was unharmed. When she looked from him to the nurse she saw a

stately, golden-haired woman.

"I am a goddess," she said. "My name is Ceres. My daughter Proserpine has been stolen from me, and I seek her in disguise. For your kindness I would have made your son immortal. You have prevented me. But I shall not forget him."

Before the queen had recovered from her astonishment the tall stranger had walked away on her long journey.

Many years passed. Triptolemus grew up. Ceres discovered her daughter in King Pluto's underground kingdom. Then she returned to Eleusis, in her own guise, and said to the young prince: "Nursling, I will make you a blessing to the whole world if you will follow me to the plains."

There she taught him how to plough, to sow, and to reap corn. She gave him a great store of the precious grain, and lent him her magic chariot, so that he might

travel round the world teaching all people

how to grow and use corn.

Imagine the difference this knowledge made to mankind. Instead of living by hunting alone it was now possible to lay in a store against the winter days when there were no fruits, rivers were frozen, and beasts were curled up for their winter sleep. No wonder that there is a corn legend in every mythology, describing its discovery as a gift from the gods.

Triptolemus was honoured and blessed everywhere; but the King of Scythia was jealous of his renown, and determined to murder him. Accordingly he invited Triptolemus to stay in his palace and tell him more about this wonderful corn.

When everyone was asleep Lyncus, the king, stole toward his guest's room, sword

in hand. He knew no slave would consent to strike the benefactor. But suddenly Lyncus dropped the sword and fell on hands and knees. A queer anguish seized him. Fur sprang on his limbs. He was turned into a lynx. Terrified of being killed by his own guards, the traitor king fled into the wilderness. A lynx has typified treachery ever since.

When Triptolemus had travelled all over the world he gave back the chariot, and settled down at Eleusis. He inaugurated festivals there in honour of Ceres, the goddess of harvests, and her daughter

Proserpine, the spring.

The Eleusinian festivals became famous, and continued to be celebrated for hundreds of years, long after the age of dim legends had given place to the age of history.

## HOW THE TRAIN WAS SAVED

In a wild part of Western Virginia lived a poor old widow in a roughly-made log hut on the edge of a chasm, miles away from any neighbours.

The Baltimore and Ohio Railway had its track close by, and ran across a wooden

bridge over the yawning chasm.

One windy day in March the snows were melting on the mountain heights, and the river that flowed through the gorge was filled with an icy flood of melted snow. As the day lengthened the waters grew noisier, and their ceaseless roar made the old woman and her daughter uneasy. They went to bed at last in fear and trembling.

About midnight a crash caused them to start up in terror. Clinging to each other, they crept down to the edge of the gorge, and found the bridge broken to pieces.

No sooner had the old woman realised what had happened than the awful thought came to her that the night mail would be due in half an hour. There was no one, no signal-box, no telegraph, to warn the approaching train of the terrible danger

that lay before it.

Was there nothing she could do? There was one thing—a light! The driver would see a light, though shouts would seem more than a faint whisper in the roar of the raging wind. But where was she to get a light? In the hut she had but half a candle, and if she took that on to the line the rain and wind would put out the light directly. In her poverty she had neither lamp nor lantern, and the winter fires had almost exhausted the pile of sticks that she had gathered in the woods.

Searching anxiously round the little hut, her eyes rested on the old wooden bedstead and two wooden chairs. They were dry and old. These were the only things she could burn.

With trembling and eager hands the two women chopped and cut at the bedstead until it lay on the floor in pieces; then, carrying these in their arms, they climbed up on to the line, and piled up the wood in the middle of the track.

Shielding a match from the wind, the old woman struck it and put it to the pile of furniture. To her joy, this caught light; just in time, for as it began to blaze up the rumble of the train could be heard.

How eagerly mother and daughter watched that burning pile, hoping and praying that the engine-driver would see it in time to stop the train! The mother took off the red skirt she wore, tied it to a stick, and hurried up the line, waving it about in the light from the fire, while the daughter flourished a burning post.

Nearer and nearer came the roar of the train; it was rounding the curve; they could see the light in front of the engine. Then gradually the train slowed down, and came to a stop close to the blazing pile.

The driver's keen eyes, accustomed to see far ahead, discovered the dangerous chasm and the empty space where there should have been a bridge; and as his eyes travelled to the burning furniture and the figures of the old woman and her daughter he recognised the act of courageous self-sacrifice that had come from a brave heart.

### BELLEROPHON AND THE WINGED HORSE

Bellerophon came to the Court of King Iobates of Lycia with a letter from the king's kinsman Proetus. The youth thought that it was a letter of recommendation, but Proetus was jealous of Bellerophon, and had written asking Iobates to have him killed for a crime which, in truth, he had never committed.

Iobates looked up from the letter at the stranger's frank face and fearless bearing. The king thought: "He does not look a scoundrel. If he must die it shall not be by the rope or the assassin's dagger.

He shall die in open fight."

He made Bellerophon welcome as though the letter had indeed been one of friendly praise from Proetus. But that night he began to talk of courage.

"There are no heroes today," said the king; "all men are cowards in spite of their fine armour and strutting airs."

Bellerophon flushed, and said, "My lord, I am no hero, but no one has the right to call me a coward."

"But you would not fight the Chimera, for all your brave words," said the king. "I will fight him, whoever he may be,"

cried the youth.

"You have promised," said Iobates, but you will break your promise when I tell you that the Chimera is a horrible monster who lives on a burning mountain, and has killed every warrior I have sent to destroy him."

"I will go to his lair tomorrow, even if there should be twenty of the brood!"

declared Bellerophon.

Iobates knew that Bellerophon would be killed, and that Proetus would have his desire, but the king was sorry, for Bellerophon seemed to him a modest, brave man, such as he would have had for a son. He had only a daughter to succeed him.

Next day Bellerophon set off with a little store of provisions and his armour. He had a short journey to make before he reached the burning mountain. As he went along he thought of the stories that he had been told about the Chimera. It seemed an invincible monster, but Bellerophon would rather have perished than have let Iobates mock at his courage.

At length he came to a place where he could see the burning mountain sending up rosy smoke above the trees which clothed its sides. He put on his armour, and bent to drink at a brook, perhaps for the last time. When he lifted his eyes he saw a tall and glorious woman standing

on the opposite bank, holding a great winged horse by the bridle. From her helmet and spear he knew she was the goddess Minerva.

"Brave youth," she said, "you shall not perish in an unequal contest. The gods lend you this horse, whose name is Pegasus. He will bear you to victory."

She put the reins into Bellerophon's hands, and vanished. He leaped on to his winged steed, who sailed into the air, and

bore him to the Chimera's cave.

This monster had the fore-parts of a gigantic lion, and ended like a scaly dragon. Its swift pounces, terrible talons, and fiery breath would soon have destroyed Bellerophon if Pegasus had not wheeled and darted just out of the creature's reach, returning to let his master thrust his sword at its tough hide. After a long struggle it was slain. Bellerophon urged Pegasus into the air, and flew to Lycia.

Everyone ran out to behold the winged horse flying over the house-tops, and when Iobates saw who rode it he cried: "Bellerophon was innocent. Proetus lied.

The gods have aided him."

Bellerophon dismounted at the palace steps, but he kept a firm hold of the reins. After he had told Iobates that the Chimera was dead he took Pegasus to the stables and tied the horse up himself.

There was a feast at the palace that night, and I obates bade his courtiers drink to Bellerophon, the betrothed of the Princess, and heir to the crown of Lycia.

The youth ought to have been contented with such wonderful fortune, but Bellerophon dreamed of a greater achievement. Mounted on Pegasus he would fly to heaven and see the gods face to face.

One day he led the steed from its stall, mounted, and turned its head skyward. Up soared the horse, eager for home.

But the gods were displeased with Bellerophon for having kept Pegasus after the Chimera was slain, and for dreaming of invading the sky. They sent a fly to sting Pegasus. He plunged violently at the pain, and flung his rider.

Bellerophon was not killed by the fall, but stunned When he recovered consciousness he found he was in a dreary country which was almost a desert. There, among savages, he spent the rest of his

life, unable to return to Lycia.

When heaven lends us wings (poetry, music, painting, and sculpture are gifts like that) we must use them reverently.

### MY LORD BAG-OF-RICE

HIDESATO, a Japanese hero, as brave as any knight of King Arthur's Court, was one day wandering about in search of adventure when he came to a lovely lake at the foot of a mountain.

It was crossed by a bridge, but on that bridge a hideous dragon lay asleep. Hidesato feared nothing, so he clambered over the dragon's scaly coils, and was going on when he heard a voice calling: My lord! My lord!"

Hidesato looked round. The dragon had vanished from the bridge, and in its place there stood a handsomely-dressed man with red hair, who wore a flashing crown.

"I have just proved that you are a brave man," said he, "now I beseech you

to help me against my enemy."

"If your enemy be an evil person I will fight him," said Hidesato, "for that is the duty of a knight. But who are you?"

"I am the King of the Lake," said the stranger. "My enemy is a monstrous centipede, half a mile long, and as thick as the biggest tree in the world. His skin is as tough as steel. Every night he comes down into the lake and carries off one of my people. Yesterday he took away my favourite child."

"If he does not slay me I will slay him," said Hidesato.

The King of the Lake thanked him joyfully, and bade him come to the palace beneath the water. Hidesato followed his host boldly. He found a beautiful flowery country under the lake. The palace was of crystal, furnished with gold and ebony. While they feasted ten goldfish played the lute and ten carp danced to amuse the guests. But all at once the merriment was interrupted by a rumbling like thunder. Everyone except Hidesato grew silent and trembled. With white lips the King of the Lake whispered: " My enemy is coming!"

"Take me to the bridge," said Hidesato. As soon as they reached the surface he saw a dreadful sight. Down the mountain came the monster, lighting up the whole scene with its fiery eyes.

Hidesato had three arrows. He drew his bow: The first arrow struck the centipede's head and glanced off. The same thing happened with the second. Then he remembered that his grandmother had told him human saliva was as deadly to dragons as a snake's venom is to mortals. Hidesato moistened the tip of the last arrow in his mouth, and drew the bow again. It pierced the monster's brain. Over and over it rolled, down into the lake, which was churned into a storm as the creature thrashed about in its death agony.

At last all was still. The moonlight shone down on the dead monster lying at the bottom of the lake.

No words can describe the joy and gratitude of the Lake people. They drew Hidesato down to their palace, and begged him to stay for ever, but he vowed that a knight must not sit feasting while the world is full of wrongs that need righting.

When they saw he would not stay they let him go, but sent a retinue of servants to escort him to the nearest town. They were goldfish till they rose to the surface of the lake. When Hidesato reached the town they laid three parcels before him, bowed, and vanished.

In the first parcel was a roll of silk which never grew less however much was cut off. In the second there was a cooking pot which boiled without fire. In the third there was a bag of rice which could not be emptied. Hidesato was thus enabled to clothe the naked and feed the hungry wherever he went.

Because of the magical bag the poor folks called him "My Lord Bag-of-Rice."

### THE MAN IN THE ENGINE-ROOM

INE of our poets began his first book of verse by saying that he would write of the great deeds of nameless men: Not the be-medalled commander, beloved of the throne,

But the lads who carried the koppie and cannot be known.

Of such is an unnamed chief petty officer of the light cruiser Calliope. The warship had left behind the lights o the Cornish coast on her way to the Azores when, in the black midnight, a pipe burst in the engine-room and escaping oil set the ship ablaze. The danger of the boiler and magazines exploding was extreme.

But the Calliope has a name honoured in the history of the Navy, and well was it sustained by the chief petty officer on that day. Alone he went down into the engineroom and turned on a steam-pipe that averted the danger; and presently the Calliope, flooded and crippled, crept back to Plymouth, the fire extinguished, and a new laurel in her crown of fame.

## THE STOLEN BELL

BENKEI was not only the strongest man in Japan but, except for Hercules, the strongest in the whole world

the strongest in the whole world.

He was at first a monk, though he was not much suited for a religious life. Indeed, he used to go to a narrow gorge, put on black armour, and challenge all comers to fight. He kept the swords of those he vanquished, and had nearly a thousand when one day the hero Yoshitsune came and defeated him.

After that Benkei became the hero's faithful squire, and followed him round the land doing knightly deeds. But let us go back to Benkei's early days, when he

was a young monk.

Not far away stood the temple of Miidera, which possessed a very fine and large bronze bell. One night Benkei set off over hill and dale to Miidera, broke into the belfry unobserved, and lifted down the bell. He next took down the crossbeam, hung the huge bell on one end and his paper lantern on the other, and marched back to his own monastery.

When he had hung up the bell he woke his fellow monks, and proudly showed them the new possession. They were and even when they knew the bell was stolen they determined to keep it.
"Soon it will get used to its new home,"

delighted. One of them pulled the bell-rope, and the bell moaned:
"I want to go back to Miidera!"

Benkei's jaw dropped. However, the

other monks were as dishonest as he was,

they said hopefully.

They used to praise it loudly, and only pull the rope gently; but it always sobbed out: "I want to go back to Miidera!"

At last Benkei lost patience. He seized a bar of iron and dealt the bell a huge blow, meaning to shatter it. The bell only roared out, so that it could be heard for miles: "I want to go back to Miidera!"

Then Benkei unhooked the bell and carried it to the door of the monastery, which stood on a hill. There Benkei gave it a tremendous kick. Off it bounded, chattering and ringing, bounding up hill and rolling down dale, till at last it reached the temple gates of Miidera.

There it was warmly welcomed, and hung in its own belfry, where it never spoke anything but bell-language for the

rest of its days.

### ECHO AND

EARTH and Air once had a daughter who was called Echo.

She was a beautiful, gay, talkative nymph, and was one of Juno's hand-maidens in the skyey palace of the gods. Soon, however, Juno found that her pretty favourite was such a gossip that she babbled out the most important and secret matters. Jupiter was angry, and sent her away to live on Earth. Lest her tongue should do harm there, as it had done in the Cloud Court, he decreed that she should only be able to repeat what others said.

At first Echo was happy enough in the lovely woods of Greece. She found beings like herself there, tree-spirits called Dryads, fountain-spirits called Naiads, little mischievous fauns, half-boy and half goat, and the great Pan, with shaggy legs and cloven hoofs, but a sweet voice and music-making hands. He was the lord of all wild birds and beasts. He cared for straying lambs or kids. He blessed the poor man's garden and byre.

This wood god loved Echo, but she turned from his ugliness in scorn. His sad piping, as he sat apart from the dancing rout, could not touch her heart. She was gay, though her tongue was tied.

### NARCISSUS

One day, however, Echo was stricken by the same sorrow as Pan. She heard a horn in the woods, and peeped through the bushes. A young huntsman called Narcissus was calling his dogs. He was as beautiful as a girl, though he did not know it, for he had never seen a mirror.

Echo fell in love with him. She came out of the bushes, but she could not speak, except to echo his words, and he would not speak to her. He turned from the stranger to seek his dog. She followed, through bog and thicket. The huntsman grew angry, and said: "What do you want?"

Echo repeated his words.

"I have no money, beggar-woman. Do not follow me," cried Narcissus, more fiercely still.

Echo, who longed to ask to be a servant in his house, could only say, "Do not follow me!"

(10W IIIC ; .

"You are mad. Go away!"
"Go away!" echoed the nymph.

At last the bewildered huntsman grew so harsh and threatening that she fled away into a cavern, where she mourned till nothing was left of her but a voice. All her pretty body faded away like a rainbow, but her voice is immortal to this hour.

Venus was sorry for the nymph, and

determined to avenge her.

One hot summer day Narcissus was led by a flying hart to the very cavern where Echo had died. It had been a long chase, and when the huntsman had slain his quarry he was glad to notice a still pool of water near by. As he bent to drink he saw a lovely face in the pool. He did not know it was his own reflection, but thought he had seen a water-nymph. Straightway he loved her, and tried to drag her from the depths. But she disappeared at once in the troubled water.

Narcissus withdrew, hoping that when all was still she might conquer her fear and leave the pool. After a time he tip-toed back. The image smiled up at him. He

began to woo her gently.
"Timid spirit," he said, "do not fear me. I love you!"

A faint voice echoed "I love you!"

""Then leave your pool, and be my " My father wife," said the huntsman.

has flocks and herds and a fine house. You should have soft apparel and gold You should have all you ornaments. desire. I will love no other."

"I will love no other!" sighed Echo. "Then come!" coaxed Narcissus.

"Come!" mocked Echo.

But when Narcissus again tried to seize the lovely face once more it disappeared.

By sunlight and moonlight he watched and pleaded, while the image smiled and answered his love vows. Yet she would not come to him.

Narcissus thought she was imprisoned by some enchantment, and at length, worn out by fasting and despair, he died.

When Venus saw his body she turned him into the flower we call Narcissus. Every spring it stands by the pool, gazing at its own reflection till it pines to death. But next year it will rise to love and sorrow all over again. Echo haunts the cave to this day.

#### SISTER DORA AND THE TOILERS OF WALSALL

In the little village of Hauxwell in Yorkshire was been Yorkshire, was born in 1832 a girl named Dorothy Pattison, who in later life, when working as a nurse in Walsall, became known as Sister Dora.

She was a bonnie, merry girl who much liked to get her own way, and, growing restless in the little country village where her home was, longed to go with Florence

Nightingale to the Crimea.

She was not then trained for nursing, and her father would not consent to her going, so she stayed at home and taught the village children. But she soon found her life-work in nursing and caring for sick people. She seemed to bear a charmed life, to have strength more than human, and her courage, self-sacrifice, and devotion to all who needed her help made her life one long golden deed.

In 1864 Sister Dora joined the Sisterhood of the Good Samaritan at Coatham, in Yorkshire, and the experience she thus gained in nursing poor people and taking interest in their needs was very helpful to her in her future hospital work.

Where pain and misery were there was Sister Dora to help and cheer. When a worker in a coal-mine met with an accident, and the surgeon at her hospital wanted to cut off his right arm, it was Sister Dora who pleaded to be allowed to try to saye it. She did save it, too,

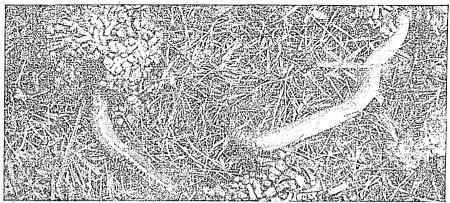
and the grateful man used afterwards to walk eleven miles every Sunday to ring the hospital bell with that arm, and inquire about Sister Dora when she was lying ill herself. It was Sister Dora who helped a poor little burned child to die so happily that with almost her last breath she said she would meet Sister Dora in heaven with a bunch of flowers!

When smallpox broke out in the town Sister Dora spent her hours of rest in nursing in their own homes those who had none to care for them. For six months she battled with disease and death almost single-handed, herself putting sufferers into the ambulances and taking them away to be nursed, struggling with delirious patients and mothering tenderly every sick child.

And with all her ceaseless work and untiring energy she was so strong, merry, and full of fun that she *made* her patients want to get well; as one of them said, "She'd make you laugh if you were dying." No one could be gloomy or hopeless when looking on her face.

Far too soon Sister Dora had spent all her strength for others; yet, true to her noble nature, she worked to the end, keeping her own suffering hidden from those around, and passing from one bed to another with her soothing touch, her cheery word, and her loving smile.

### Nature's Wonderful Living Family in Earth and Air and Sea



Earthworms and their casts

# THE WONDERFUL WORK OF A WORM

WE are all on the side of Cowper and Darwin now; of Cowper the worm's poet-friend, of Darwin the worm's historian.

Says our gentle poet:

I would not enter on my list of friends (Though graced with polished manners and fine sense,

Yet wanting sensibility) the man Who needlessly sets foot upon a worm.

That gives the worm a title to respectability in poetry where, throughout the ages, he has been a much abused, much misunderstood little fellow. To Darwin, and to the followers he inspired, the worm owes its vindication as the first of husbandmen, who ploughed before Adam, and long before man tilled the soil prepared it for his coming.

What an unmerited reputation for evil the worm has had to live down! If any creature were evil, men called it a worm, and posterity asked for no further evidence of its villainy.

Forty times and more Shakespeare slanders this poor tenant of the earth, as the worker of mischief, or as the symbol of misdoing and fatal melancholy. Vile worm, poor worm, viperous worm, gnawing worm, eyeless venomed worm, worm of the Nile (which means a snake), there is no

goodness in the worm, the worm is not to be trusted—so runs the master's pen.

Shakespeare was clear-eyed and accurate in all things he observed at first hand, but he took the worm's character at second hand, and lo, it was very bad. The standard books on natural history available to him asserted that worms "be full evil and malicious; some be footless, and some have six feet and be enemies to mankind."

Yet out of the very wickedness of worms men were to distil anti-toxins against "shrinking of sinews and biting of serpents and scorpions." Also, if the armourer stamped upon worms, strained them through cloth, then added an equal quantity of oil of radish-roots, and used the mixture in the making of swords or daggers, "the same shall cut through iron after, as though it were lead."

The Church was equally emphatic about worms. There still survives the charge, drawn up by the martyr Trypho of Lampsacus, wherein, addressing worms and various insects he says:

O ye worms, and all other creatures that cling to and wither the fruit of the grape and all other herbs, I charge you by the many-eyed Cherubim and by the six-winged Seraphim, which fly round the Throne, and by the holy Angel and all the Powers, hurt not the vines,

PREHISTORIC LIFE · MAMMALS · BIRDS · REPTILES · FISHES · INSECTS

nor the land, nor the fruit trees, nor the vegetables of \_\_\_\_\_\_, the servant of the Lord, but depart into the wild mountains, into the unfruitful woods, in which God hath given you your daily food.

Truly the harmless, necessary worm needed a Cowper and deserved a Darwin, the one to bespeak its life, the other to trumpet forth its manifold virtues.

"If I but see a worm, I have no appetite for the next three days," said a lady once, not realising that but for worms there would be little food to satisfy her appetite. How does this boneless, limbless creature discharge its great service to the Earth, to vegetation, and so to all animals and to ourselves who depend on them? It is a living mill, grinding up soil day and night, reducing the mountains of other eras, with the verdure and carrion of yesterday, to the fine compost from which all plant life springs and grows.

# THE ASTONISHING DIGESTIVE SYSTEM OF A WORM IN THE EARTH

Its body is segmented, ringed throughout, and through the interior of that long body runs the astonishing digestive system. The thin, pointed end of the worm is the head, bearing the mouth, which has neither jaws nor teeth, but a lip for grasping. A muscular sac, called the pharynx, leading to the gullet, or food-canal, is responsible for suction to aid in taking in food. The matter eaten, as it passes down the gullet, comes in contact with glands, not found in any other animal, which secrete a large quantity of carbonate of lime and aid in the breaking-down process by which the food is reduced to digestibility.

From the crop to the gizzard the meal progresses, and, arrived in this powerful mill, it undergoes a grinding similar to that to which the food of a bird is subject. In the gizzard, as we should expect, are numerous small stones, varying between one-twentieth and one-tenth of an inch in diameter. Many small stones must be swallowed with the earthy material absorbed in the ordinary act of feeding, but a battery of stones is maintained here for the purpose of grinding; they are, in fact, the millstones of the miller of the soil.

Having been revolved and ground in the gizzard, the food passes on into the long food canal beyond. This organ is richly supplied with mechanism for the absorption of nutriment. When all goodness which can be extracted has been obtained, the residue passes on and is expelled from

the worm's body, and issues from the opening of its burrow in what we all know as wormcasts. These casts, if lightly swept over the dry lawn, form the best dressing the turf can have.

The worm has no eyes, but it has quickacting sense-organs. It can detect the difference between light and dark. It never shows itself in bright daylight unless it is frightened from its hole, or unless it is sick and ailing, or threatened by the flooding of its dwelling.

# HOW THE WORM PREPARES FOR ITS FUTURE GENERATIONS

With no nose, it can smell; with no ears, it can detect vibrations. It breathes through its skin; it feels heat and cold, it is keenly sensitive to contact; it displays a decided sense of taste in the selection of its food, showing preferences for various types of vegetation over other kinds, choosing the fat of flesh before the lean, and liking fresh meat better than foul, though not disdaining to eat the bodies of its dead kind when they are left to cumber the ground about its burrow and so to threaten corruption and danger.

The thickened ring of lighter colour than the rest of the body near the head is not, as may be supposed, the scar of an injury; it marks the presence of a gland from which is poured out the fluid composing the cocoon in which the eggs of the worm are laid. For even the lowly worm has, implanted within it, the sense of duty to its posterity.

Eggs so laid produce little worms resembling their parents in all but size; there is none of the wonderful changes of form such as mark the career of the insects. It is not true that if a worm be cut in halves and we apply the head to the tail the two parts will unite, though this belief is widespread. It is true, however, that if a worm is halved the tail portion will produce a new head, the head portion a new tail, and so two worms will appear where one lived before.

# THE REMARKABLE BODY OF A WORM AND ITS POWER OF BURROWING

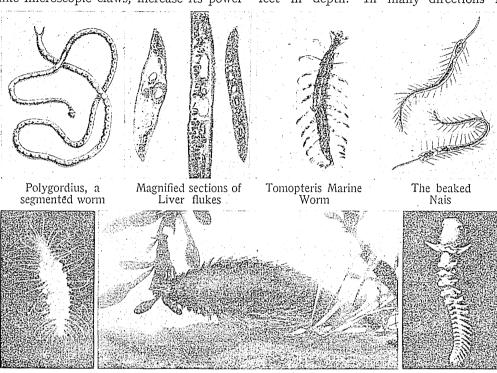
It is the nature of a worm to writhe and wriggle in order to escape, but seeing that a mere touch or even a puff of air is terrifying to them, we should give them the benefit of the doubt, respect their possible pains, and remember the words of Cowper. So much, then, for the worm itself; let us proceed from this point to the work which made Darwin declare the

#### THE WONDERFUL WORK OF A WORM

worm to be the most important animal in all the world.

The powerful cylindrical body of the worm is ideally fitted for burrowing. Its muscles endow it with thrust, and bristly appendages springing from the segments, like microscopic claws, increase its power

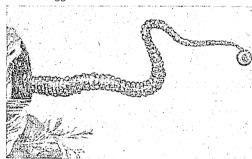
excavated while burrowing through the soil. The ordinary burrow runs a foot to a foot and a half in depth, though to escape frost or flood the worm goes far deeper, and exceptional burrows for normal life have been found between five and six feet in depth. In many directions it



A Bristlewonn and its eggs

The Sea-Mouse, a marine worm common round the coasts of Britain

Chaetopterus, a marine phosphorescent worm





of locomotion. But the worm does not butt its way through the soil. It eats as it goes, and the head, obstructed by a stone, finds a way round; and there are few obstacles too difficult for its passage.

By absorbing the soil, the worm has a less difficult task than many animals whose ways we have followed, which have to throw out the matter which they have



Myrianida, a sea worm

tunnels, but, let us remember, it cannot do this without eating the soil. The soil itself is heavily charged with vegetable and mineral débris, and it is this which the worm extracts during the complicated process of digestion.

Doubtless there are properties in the soil which this little wonder of the underworld finds of value to it, notably for the production of the carbonate of lime with which the acid of its food is attacked. The lug worm, which teems below high tide mark on our sandy coasts, eats sand in order to obtain organic remains washed down into it, and so helps materially to keep our beaches sweet and clean when the tide is out. The earthworm must sweeten our soil in the same manuer, but that is not its primary value to us.

No matter how deep the worm goes, the process is always the same—the soil must be eaten before it can be cast out of the burrow. So the medium in which it works is continually being brought up to the surface, exposed to the air, freshened, fertilised by the absorption of atmospheric gases, and receiving new deposits of organic matter to enhance its fertility.

Now, as the earth which has been eaten is expelled from the end of the worm's body, and the wormcast is always brought to the surface, how can the worm manage to turn round in its almost straight cylindrical shaft? Turn it must, for we know that the normal attitude of the animal is head uppermost. We have but to go out on to the lawn with a lantern on a warm, dark evening to see the grass covered with worms, like an intricate lacework of life.

# THE SWIFT RETREAT OF THE WORMS

Rarely, however, do we find a worm free of its burrow. The tail end remains within the shaft, and a flash of direct light or the vibration caused by a footstep sends the worms down into their holes with amazing swiftness. Their retreat has been likened to the dash of a rabbit into its hole, but perhaps a better comparison is that of the startlingly sudden withdrawal of a tortoise's head into its shell.

Worms do roam about the surface; their tracks can be followed in many directions, but they are mostly found in the position indicated—heads out, tails at home. How, then, do they perform this marvellous somersault which enables them to bring the soil to the surface—how do they turn upside down in their tube?

The probability is that at the lower end of their perpendicular or obliquely descending shafts they nearly always have a more open chamber in the earth in which to perform this mystifying evolution. Such chambers have repeatedly been found, lined with stones of minute size, with seeds and other smooth substances. They

have been regarded as the retreats of the worm from great cold and equally deadly drought, but they must, one would think, serve this other necessary purpose of

affording room to turn.

Whatever the method, the turn is performed, and out into the open comes the eaten soil, as fine as these living grinding mills can make it, the ideal potting mould. Not quite all of it is thus thrown out, however; a little remains in the shafts. The worm is a comfort-loving creature. Like the princess who wept with discomfort because there was a crumpled roseleaf under one of the many feather beds on which she lay, it must have ease and elegance in its lodging. It cannot bear a rough surface to its tunnel-lining.

# THE LITTLE UNDERGROUND TUNNEL WITH ITS LINING OF CEMENT

To avoid this it lines the burrow with a cement of fluid mud, adding here and there smooth particles of stone and glass or whatever may be found on the surface, with particles of leaves and other vegetation, and smoothing all with a connecting clothing of moistened soil. As this hardens it becomes quite polished by the movement of the worm up and down, and so facilitates that swift withdrawal into the hole which we have noted.

In addition to eating earth and its contents, the worm banquets on dead leaves, fallen blossoms, seeds, and other vegetable substances lying near the mouth of its burrow. With instinctive genius it draws the leaves down its hole in such a manner that the small end always goes first, so taking the line of least resistance.

Many of these leaves and other substances it eats; many, or parts of many, it leaves to decay and form new material for the regeneration of the soil.

# THE LOWLY WORM AND THE SPLENDID WORK IT HAS DONE FOR MAN

There we have two valuable processes, the bringing-up of old soil to the surface, and the addition of leaves and other substances to the soil. In addition to this the worm is constantly opening out channels in the earth which allow air and moisture to enter, preventing it from caking and becoming non-porous.

Moisture is received in these little canals; it penetrates through their walls and so affords a wide distribution of the dampness indispensable to plant life. All these perforations and dampings of the soil open

up ways for the germination of seeds, for the spread of the tender root-hairs of plants which, in hard, unbroken soil, would with difficulty make their way about to find nourishment for the growth of which they are feeders.

Up above the wormcasts are blown by the wind or in other ways broken down, and so are carried through cracks and little channels, down into the soil again as rain falls and makes its way into the earth. The worm's quest for food and homes has the effect of mixing soil and vegetation and animal remains into an ever-increasing mass of vegetable mould which is the seedbed of the richest plant life.

It is computed that there are about fifty thousand worms to an acre of land, and that they raise from 14 to 18 tons of soil to the surface every year, adding an inch a year in this way to the depth of the vegetable mould.

In climates like that of Britain they burrow deep to escape frost and drought, as we have seen, and such contingencies must send fifty thousand worms an acre burrowing down three, four, and five feet deep, three or four times a year, each descent being achieved only by eating and bringing up the soil excavated.

# THE RICH BLACK SOIL WHICH PRODUCES THE WORLD'S BEST WHEAT

The consequence is that air and moisture reach down far deeper than plough or spade, and wherever air and moisture go the soil is enriched and fertilised. How many worms must have worked for ages to give Manitoba her matchless area of rich black mould, the land which produces the finest wheat in the world! No other agency but worms can have done it, and Manitoba should give its worms a monument. Perhaps it can do it best by teaching its children to respect them.

We see how the worms plough and till the fields for us, preparing the way for human cultivation. They have given us all the agricultural land we have, and all the land which lies awaiting cultivation.

For it is not only in temperate Britain and America that worms are at work. They are scattered all over the world. Some of the earthworms of tropical countries are quite alarming in their dimensions, five feet long and of prodigious girth. If our little worker worms bring up their 20 ounces of soil per annum, how much more will these giants pass through their bodies for the ultimate benefit of agriculture, or even of natural wild growth!

We have concrete examples of the husbandry of worms before our eyes in England and on the Continent. Where the Wash has receded in three English counties, the worms have re-colonised. They are bringing back every yard of that land into cultivation where, but for them, it must have remained sour and unproductive for an age. During the War certain parts of Belgium were so long flooded and other parts so ravaged by the mechanism of conflict, that we all doubted if these parts would be of service again for the purpose of agriculture within our own lifetimes.

# How the worms have reclaimed the war-ravaged land

But great areas, practically all that was flooded and much more besides, is again yielding crops thanks to the work of the worms which have returned to their old haunts, have burrowed and tunnelled, sweetened and fertilised, and prepared the way once more for the arts of scornful man.

Worms have made the soil of the world. They eat the fallen vegetation. They eat mineral fragments and reduce it to powder. They pass through their bodies the tiny mineral débris which once formed part of mountains, and add these to the soil. They tunnel and let in acid and moisture which erode the rocks lying beneath the covering of soil, and so cause these to became friable and slowly resolve into soil.

Vast tracts of land have been left derelict in the United States where careless farmers took out of the land more than they put in; they reaped and harvested, without manuring the land, till it became sterile. Then they moved on to fresh land. The worms will have to restore that exhausted soil, and they will, in time.

# THE LITTLE ALLIES THAT GUIDE THE AFRICAN NATIVES TO PASTURES NEW

Meanwhile they are at their good work in advance of civilisation, and are not unrecognised where conditions of savagery prevail. It has been noted that in certain districts of Africa the natives look for wormcasts as the Red Indians used to look for the trail of men and animals. Where wormcasts are plentiful, these skilled sons of the wilds settle for brief cultivation, knowing that they will secure a harvest for their labours. Where wormcasts are few they do not attempt to grow crops, realising that their efforts would be useless.

There is another important part played by worms of which no mention has yet been made. If they make ready the land for the coming of civilisation, they are the great undertakers where civilisation has passed. They are the preservers of the sites of ancient buildings.

They gradually bury with their casts the buildings of old time, whose upper walls have fallen or been destroyed. Darwin, who gave over thirty years to the study of earthworms before writing his delightful book on them, has recorded how a field which in his boyhood was covered with stones gradually lost all trace of these stones, so that the field became a soft grassy place, and its stones a memory.

# THE CHANGING FACE OF THE LAND THROUGHOUT THE CENTURIES

What worms can do in a generation with a stony field, they can do in the course of centuries with buildings, perhaps with cities. Beneath the deep foundations of great pillars and columns they may not be able to penetrate, but beneath the floors, where cement and concrete decay and crack, they can work. And it is there that they dwell, devouring the soil, and casting it up between the cracks so that, in course of time, the dried and scattered casts cover the floors, rise and cover the broken remains of walls, and bury all feet deep in soil, safe yet secret.

The very site and existence of such buildings passes from human knowledge. The plough does not go very deep, and harvests ripen over the site where beauty, wealth, and power once reigned. Accident at last takes pick and shovel deeper than the plough, and there comes to light a fragment of wall, a stretch of an old tesselated pavement, and there, when careful search is made, is some fine old Roman villa, whose sides and upper parts are gone, its floors and foundations preserved by the labours of generation after generation of worms.

# Some Harmful cousins of our Lowly Friend

But the earthworm is not the sole representative of its great class. There are worms in the sea, worms in still waters, worms on the shore, worms with almost unbelievable life-histories which live as parasites on animals and human beings. There are worms which, called flukes, arise from eggs in water, creep as larvae into snails, and pass from these to vegetation eaten by sheep, in which the larvae complete their course.

These creatures sometimes become a plague among sheep, and periodically cause enormous losses among our flocks. Other forms infest the minnows, frogs, and birds. They are not harmful to adult birds, in whose crops they are killed, but if they are transferred unhurt by the old birds to baby birds they develop in the nestlings and kill them.

The tiny worms which develop under the skin of human beings in hot countries; worms which penetrate human muscles and cause the disease known as trichinosis; the extraordinary U-shaped worms, formidable with bristles; all the leeches which suck human and animal blood—these are members of the great group to which the earthworm belongs, and may be studied in text-books by all who desire fuller knowledge of the subject.

The earthworm is perhaps the least picturesque of them all, yet it is our only friend among them. We can all watch these for ourselves for they thrive well in a bucket of good garden soil. They can be observed at night by the aid of a shaded light, where we may see them collecting little stones, feathers, and leaves with which to bar the entrance to their burrows. Not all the things they collect are taken below and devoured. They line their shafts with leaves, they make barriers to their front doors. Behind the barrier they lie with the head near the entrance, a habit which so often makes them prey to thrushes, blackbirds, and starlings, for the head is easily reached and the body pulled out.

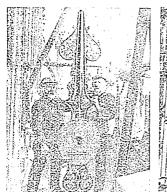
# THE WORK OF THE MASTER GARDENER OF THE EARTH

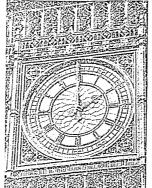
This fatal position which they assume in the burrow is supposed to arise from a desire to be near the open air, perhaps to snuggle up to the warmth which, in such a position, exceeds that of the damp earth below. When we see dozens of birds foraging on the lawn, tearing up worm after worm, we wonder how the stock of worms can be maintained, but it is constant. The numbers born equal the numbers eaten, and so the world goes on.

The heavy soil overlying the clay which is the foundation of the lawn is gradually worked over and over, the drainage is improved, sour soil sweetens, the advance of moss is checked, the rich green grass grows stronger, and we have turf soft, thick, and velvety and a joy to tread, a delight to rest on.

It is the worm, our master gardener, who does the work. Out of sight and out of mind, he makes soil fruitful, fine, and rich for the whole of our habitable Earth.

### The Story of the Things We See About Us Every Day







The hour hand, the tace, and the pendulum of Big Ben

## THE STORY OF THE CLOCK

ALFRED THE GREAT, one of the noblest kings who ever ruled over England, never saw a clock. He used to allow himself eight hours for work, eight hours for pleasure, and eight hours for sleep. In order to divide the time like this he had candles made which took a certain time to burn away, and so told him how the hours were passing.

Even that was better than many men were able to do. They knew how long a year was, because it takes the Earth a year to go round the Sun. They knew how long a month was, because it takes a month for the Moon to go round the Earth. They knew how long the day and the night were, because it takes just a day and a night, all but a few odd minutes, for the Earth to turn round once. But all sorts of things had to be used before clocks were made to tell how an hour passed, and some of these ways of telling time are shown on page 2295.

But there is nothing so simple and so good as a clock, which tells us the time at a glance as soon as we have learned to understand it.

There are many different sorts of clocks. Some will go for years, once they have been wound up. Others will go for eight days; others need winding every day.

But, no matter how often they need winding up, and no matter how they are made to go, the thing they have to do is always the same. A certain number of wheels have to be made to go round so regularly that it will always take them a certain time to do their work. When you wind up what is called a grandfather's clock you wind strings on to a sort of barrel. At the end of the strings heavy weights are fixed. These weights hang down and The pulling makes are always pulling. the wheels go round, as the pulling of a horse makes the cart go. The wheels have cogs, or teeth, which fit into the cogs of other wheels, and all have to go round at the same time, though not all as fast as one another. Some wheels have a lot of teeth, others have not so many. while one wheel turns round in sixty seconds, or one minute, another wheel takes sixty minutes, or one hour, in which All this turning is simply to turn round. to make the hands work round and round over the face.

There are many parts always at work. There is the pendulum swinging, and there is the part which prevents the clock from doing its work too quickly or too slowly. If the clock goes too quickly, or gains time, as we say, we unwind a little screw

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#### **FAMILIAR THINGS**

at the bottom of the pendulum. This lets the weight at the end of the pendulum slip down a little, and causes the pendulum to swing more slowly. If the clock loses time we wind the screw up a little. This makes the pendulum shorter, and causes it to swing a little faster. Some clocks have no pendulum. They work with a spring. Then, instead of altering the pendulum, we have to move a little pointer. If we push it to the right we make the spring tighter, and the clock goes a little faster. If we push the pointer to the left we make the spring looser, and the clock goes more slowly.

THE WATCH THAT RINGS A BELL TO TELL TIME IN THE DARK

Some clocks not only tell the time with their hands, but strike the hour. When the long minute hand points to the figure twelve, and the short hour hand points to one, a little hammer at the back of the clock gives one blow on a bell or gong fixed in or on the clock. This tells us that it is one o'clock, without our having to look. Some clocks strike as each quarter of an hour passes; others play a tune at the the end of each hour.

Clocks and watches can be made to do very wonderful things. One watch, called the repeater watch, can be made to tell us what time it is even when we are in the dark. We have simply to press a knob, and a little bell rings out the number of the hour, and the number of the quarter-hours that have passed since that hour was reached. Then there is the alarm clock, which rings a bell at the hour for which we have set it.

So through day and night, week after week, year after year, the faithful clock goes on teiling us the time. Some clocks last hundreds of years. The editor has heard a tune played in Holland by a clock which was ticking when Napoleon was alive, and another in an old church in England which has lasted more than three hundred years. Both these clocks still tell the time as correctly as if they had been made only a year ago.

THE CLOCK THAT SAVED A MAN'S LIFE BY MAKING A MISTAKE

But nothing is perfect in this world. There is a story that once a man's life was saved by a mistake made by a clock. A sentinel, who was supposed to keep awake all night at Windsor Castle, was said to have fallen asleep while on duty at midnight. If they had been able to prove that he had been asleep he would

have been shot, so he was very anxious to show that he was awake. "I can prove that I was not asleep," the man said. "I heard Great Tom of Westminster strike thirteen." At first they thought this a stupid story, because clocks do not strike more than twelve; but when inquiries were made it was found that what the man said was true. The clock had something wrong with it that night, and struck thirteen instead of twelve. That mistake of the clock saved the soldier's It is curious that many people may have heard Big Ben strike thirteen since, for in our time, when wireless carries Big Ben's notes through England, those who live in Westminster may, if they are clever, hear the clock strike twelve by wireless and then, by going quickly to the window, may catch the last note once again, owing to the fact that wireless waves travel more quickly than sound waves.

### THE GREAT BELL WHICH IS RUNG ON SOLEMN STATE OCCASIONS

Great Tom of Westminster was the name of a great bell cast in the reign of Edward the First. It was hung at Westminster Hall, where the judges used to sit, and tolled the time of day for their information year after year. At last William the Third, in whose reign the incident recorded above is said to have occurred, presented the old bell to St. Paul's Cathedral where it was hung, and became the striking bell of the old clock. Westminster Tom still hangs in the clock tower of the cathedral, but has long been silent except when struck on certain solemn State occasions.

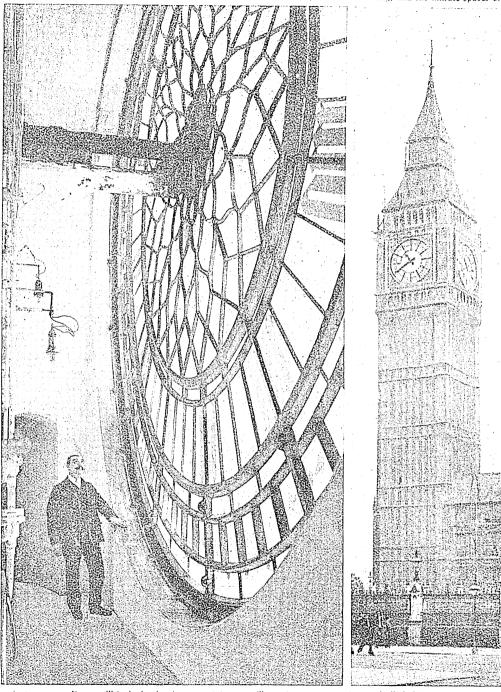
Big Ben at Westminster has had a chequered history. As originally cast it was hung for testing purposes at the foot of the Clock Tower and soon cracked. It was recast and hoisted into position. Once again, however, it cracked. After some time a lighter hammer was employed and the striking-point being altered, the tone was considered satisfactory. Ever since 1858 Big Ben has been ringing old days out and new days in, little the worse for the crack in his side. The clock and its bells cost £22,000.

It is lovely to think of Big Ben's song ringing through the land. This is what it says:

So hour by hour Be Thou my guide; That by Thy power No step may slide.

# BEHIND THE GREAT FACE OF BIG BEN

At the top of 360 steps in the Clock Tower at Westminster, Big Ben has marked time for well over half a century. It is not possible to understand the size of the clock as we stand on the ground. It has four faces, each 23 feet across: nine or ten times as wide as a door. The minute hands are 14 feet long; they would reach higher than an ordinary room. The pendulum weighs nearly 450 lb. The figures on the face are each two feet long, and the minute spaces are



a toot square If you will look closely at your watch, you will see the minute hand move in little jumps: the minute hand of Big Ben jumps half a foot every time it moves. It is not easy to believe these figures, but that is because our eyes deceive us when we look up to a great height, and Big Ben stands so high that if thirty tall men stood on one ano her's shoulders the top man would only just touch the middle of its face. Big Ben is not the biggest clock in Great Britain for Liverpool has a clock with a face 25 feet across, and the face of the Singer clock at Clydebank is 26 feet across



THE clock-face has a ring of large figures from 1 to 12; these mark the hours. Outside these large figures is a ring of tiny marks; these mark the minutes. One of the hands is longer than the other: the long hand marks the minutes and the short hand marks the hours.

When the short hand points to 1 and the long hand is exactly at the top of the clock-face over 12, it is 1 o'clock. When the short hand points exactly to one of the large figures, the long hand is always at the top, and it is exactly the hour.

But if the short hand is a little past one of the large figures it is some minutes past the hour. and we know exactly how many minutes it is by counting the tiny marks on the outer ring. There are five of these marks between each of the large figures, so that when the long hand is at 2 it is 10 minutes—twice 5 minutes—past the hour.

The minute hand goes round the clock once in an hour; the short hand goes from one large figure to the next in an hour. When the long hand is a quarter of the way round, it is a quarterpast the hour to which the short hand points; when the long hand is half-way round, it is halfpast the hour. Here is a full and simple explanation of the face of a clock.

THE face of a clock is divided into 12 clear wide spaces and 60 narrow ones, and each wide space stands for two things. It takes the long hand 5 minutes to cross one wide space, and the short hand one hour to cross the same space.

A minute is 60 seconds, and an hour is 60 minutes. The clock begins with the minutes, and the face of the clock is marked off with tiny lines into 60 narrow The large hand marks the minutes, and takes exactly one minute to cross one of these narrow spaces. So that this hand takes exactly one hour, or 60 minutes, to pass all the narrow spaces round the clock.

But it would never do to have 60 small spaces leaving us to guess the exact space which the long hand touched. Put 60 matches in a row on the table, touch one near the middle, and ask somebody to tell you the number of the match you touch, and you will see that a great deal of slow counting is necessary to get the proper number. It would never do to have to spend so long in finding out the exact time.

So the wise clockmakers mark off 60 narrow spaces into 12 divisions, each division having 5 narrow spaces. When we have to count with our eyes, as we do with the clock, it is hard to pick out one in 60, but it is easy to pick out one in 5, and we have now 12 simple divisions, each with 5 spaces. It takes the long hand 5 minutes to cross one of these divisions, 10 minutes to cross two of them, and 60 minutes, or 12 times 5, to cross them all. When the long hand has crossed all these divisions, therefore, we know that 60 minutes, or one hour, has gone.

minutes, 60 in 60 minutes. Once round the clock by the long hand is an hour. If we had only to think of minutes, that would be quite enough; but as we reckon time in hours and days, and as there are 24 hours in a day, we must have some means of counting hours, as well as minutes, by the clock. So the clock is marked off into hours, as well as minutes, and the hours are marked in a very clever way.

We do not count 24 hours, but only 12, because twice 12 are 24, and it is simple to count 12 hours before the middle of the day, and 12 after. The clock, therefore, has 12 hours marked, and goes round from I to I2, when it begins again. We call the first part of the day A.M., which means before noon, and the second part P.M., which means after noon; and whenever the clock points to 3, or to 4, we know whether it is before or after middle day.

The cleverness of the way in which the clock marks the hours is this. We know that the 60 minute marks are marked off into 12 divisions, and there must therefore be 12 dividing walls to separate them. Now, as the clock needs 12 signs to mark the hours, the figures from I to I2 are used to mark off the I2 divisions, and also to mark the 12 hours.

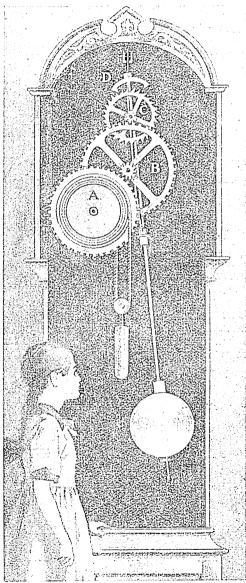
So that, instead of needing two clockfaces, one for minutes and one for hours, one face serves for both. While the long hand marks the minutes at the narrow spaces, the short hand marks the hours at the 12 big figures between the spaces.

Let us see how this works. We set the clock, let us say at noon, which is 12 o'clock. Both hands point exactly to 12. In 5 minutes the long hand has That is simple. The long hand crosses crossed the first space, and is opposite the one narrow space in I minute, two in 2 first dividing wall, which is the big figure I.

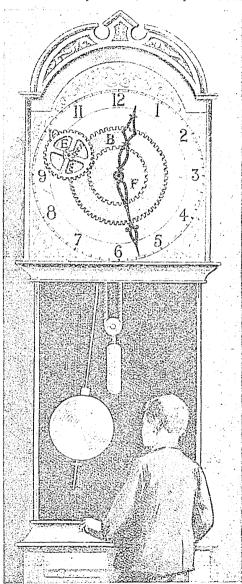
### HOW THE WHEELS GO ROUND

This picture of the inside of a clock shows us how the wheels go round. It is not the pendulum that makes the clock go; it is either a weight or a spring. In this grandfather's clock it is a weight. The weight is on a cord which passes round a broad wheel, called a barrel, marked A in the picture. The heavy weight pulls the cord downward, and the cord, being wound round the barrel, pulls the barrel round. The edge of this barrel has teeth which work into the teeth of a small cog on

This picture shows how the wheels make the hands go round. The three wheels shown in front of the clock, marked B, E, and F, are really behind the face. B; E, and F are necessary for the hands. Wheel F goes round once every hour, and as the minute hand is fixed to it, the wheel carries the minute hand round with it. Now wheel F touches wheel E with its edge, making it go round also. E is a double wheel, having near the centre a small wheel fixed to it with only six feeth; it is really on the other



another wheel, marked B, so that both wheels go round. This second wheel causes the top wheel, marked C, to go round, and so all the wheels are set to work. But if that were all, the wheels would run round too quickly, and they must be made to run slowly and regularly. At the top is a curved piece of metal with a catch at each end; it is called the escapement, and is marked D. This swings to and fro, and every time it swings, it catches the top wheel and prevents it from going round more than one tooth.



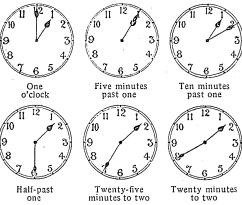
side of wheel E, but is shown in the picture in front for clearness. Each tooth in it fits into a tooth in wheel B, thus making that wheel go round. As wheel E goes round once in an hour, the six teeth in its centre carry round one-twelfth of wheel B, which has seventy-two teeth. The hour hand is fixed to wheel B, so while F is going once round. It makes wheel E drive B one-twelfth of its journey. Thus wheel F, to which is attached the minute hand, turns twelve times while wheel B, with the hour hand, turns once.

#### FAMILIAR THINGS

That is 5 minutes past I. In 10 minutes the long hand has crossed the second space, and is opposite the second dividing wall, which is the big figure 2. That is 10 minutes past I. So the long hand creeps round, in the way shown in the first group of clock faces shown on this page.

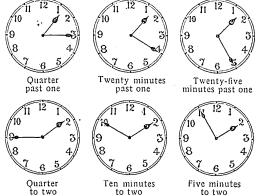
We can easily count the divisions because the big figures tell us. Thus, when the long hand points to the big figure 4, the long hand points to the big figure 2 we must not think it is 2 minutes past something. It is two spaces past—that is, 2 times 5 minutes. We only count the big 2 as 2 when the short hand points to it.

An exact hour is marked when the long hand is at the beginning of its round, opposite 12, and the short hand points to a big figure. The hours are shown in the second group of clock faces given on this page.

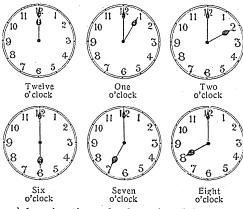


we know that it has crossed 4 divisions, and, as 4 times 5 are 20, we know that 20 minutes have gone. If the long hand points to the big figure 6, we know it has crossed 6 divisions; and 6 times 5 are 30, so that 30 minutes have gone, or half an hour.

All this time, of course, the short hand of the clock is moving also, very slowly,

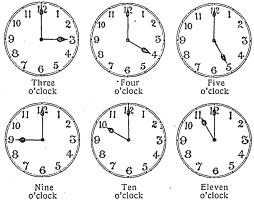


When the long hand is on the right side of the circle, we say that it is so many minutes past the hour. But when the long hand begins to go up the left side, we say it is so many minutes to the next hour. You can say that it is 40 minutes past 2; but it is much easier to say that it is 20 minutes to 3, and both these mean quite the same.



and by the time the long hand has gone right round to 12 again, the short hand has travelled to the big figure 1, and it is therefore 1 o'clock. When the long hand has gone right round twice, the short hand has crossed 2 divisions, and points to the big figure 2; and it is therefore 2 o'clock.

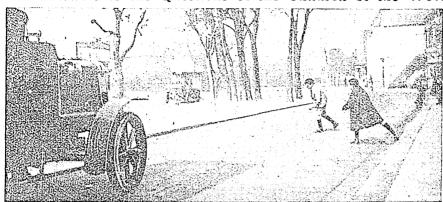
Remember that the big figures mark the hours only, not the minutes, so that when



For the first half-hour we read forward, for the second half-hour we read backward.

Some clocks are marked in plain figures, but most are marked in the figures the Romans used, called Roman numerals. Here is a table of them, from I to I2: I=I, II=2, III=3, IIII=4, V=5, VI=6, VII=7, VIII=8, IX=9, X=10, XI=11, XII=12.

### Plain Answers to the Questions of the Children of the World



A dangerous thing to do-running across the road in front of approaching traffic

## WHAT IS THE RULE OF THE ROAD?

SINCE motor-cars became common in Britain the number of accidents on our roads has increased terribly. Many of the accidents are caused by the cruel carelessness of men who drive without regard or thought for the comfort and safety of people who are not motoring; but still more result from the utter ignorance or neglect of the rule of the road shown by children.

When walking on the footpath, we should always keep to the left, so that those who are near the edge of the path are facing the traffic near to them on the road.

When we step on to the road a different state of things exists. The road is the place for wheeled traffic, and vehicles do not keep to the right. Vehicles keep to the left in Britain. It does not matter whether it is a motor-car, a bicycle, a perambulator, a 'bus, or a steam-engine, they have all to keep to the left. But if many vehicles are going in the same direction, and some are going faster than others, then some must pass others. Those going slowly in front are already on the left, so those which are travelling more rapidly must pass on the right. We are not allowed to pass on the near (or left) side of a vehicle, except in the case of a tramcar, because the tram-lines, are, as a rule, in the centre of the road.

We must always look out for signals when travelling on the road. If we watch a horse and cart, though we may not see its driver, we suddenly notice the whip held straight up and twisted in short curves round and round. That means that the driver has seen a stoppage ahead, and is signalling to us to slow down or to stop. We act on the signal, and should pass it on to those behind. If we are riding a bicycle it will be enough if we hold up our hand for those behind to see. But suppose we are riding a bicycle in a line of traffic, and we want to turn out of the traffic down a side street. We are riding on the left and wish to cross to a street running off to the right, perhaps. If all is safe we prepare to cross, but, so that traffic behind shall neither run us down nor be in danger through having suddenly to pull up through our crossing, we must put out a hand to let the drivers behind know that we are not going on, but are going to do something unexpected, in this case to cross over to a side street. The drivers behind will then slow down to see what we are going to do.

There is an exception to every rule, and there is one to the rule about passing on the right of other travellers on the road. Often we meet a man who is riding one horse and leading another. As a rule he rides the horse on the left and leads the

FIRE · WIND · WATER · LIFE · MIND · SLEEP · HOW · WHY · WHERE

horse on the right. Now, whether it takes us to left or right, we pass on that side of the road which takes us near the horse ridden by the man, not near the horse which he is leading. This custom, however, is now observed only in quiet country roads. It is practically dying out in busy streets.

The reason for passing a led horse in this way is that our vehicle may startle the animal, and if one of the horses is to be startled it is better that it should be the horse the man is riding. He can control that, because he is on its back. The same rule applies where a man on foot is leading a horse: we pass on the side near the man, if possible.

Another important thing is, if we are cycling, to ring our bell loudly as we approach a corner; to ring it if we are riding by the side of a path from which people who are walking might step off; and to ring it if we intend to pass a vehicle in front.

Then there are the tram-lines to be considered. If we are cycling, the lines, if wet, may cause us to skid. To avoid skidding, we must so guide our machine that we cross the line at a wide angle, not at a sharp angle, then we have only a small section of the line to pass over, instead of a long stretch. Again, we may be tripped by a curve in the tram-lines, and be unable to get our wheels free in time to avoid traffic. To guard against that we have to be very watchful. In heavy traffic, where there are tram-lines, it is safest to dismount and walk. If we must ride, let us not forget these hints; above all, shun tram-lines when they are wet. They will cause even the big wheels of a motor-car to skid and drag.

At all corners we slow down, and go very cautiously. But we may come to four cross-roads where all is open, and where it seems safe to spin along. Now, one road may be a main road, a great highway, the other may be only a small country road. It is understood that the man on the main road has the right to go faster over the crossing than the man who is travelling by the less important road. Therefore, if we are on the less important road, let us beware of motors coming rapidly over the crossing along the main road.

The rule of the road is founded largely on custom, and not on Acts of Parliament, and it is usual for the common custom to be relaxed out of courtesy to other traffic where this can be done with safety. For instance, a light vehicle should take the worst part of the road when a heavy vehicle is coming up a hill, and it is pleasant to know that it is the custom for such a courtesy to be acknowledged by a nod of the head or some other form of thanks.

There is a right way of crossing the road on foot and there is a wrong way. Here is the plan the Chief Commissioner of Police advises:

Before crossing the road, look to the right as far as the middle of the road, and to the left from the middle to the far side, then the crossing may be made in safety.

Nothing could be more single or effective, for by taking this small amount of trouble we see exactly of what the two streams of traffic on the road consist.

One more point. So far as road privileges go, the person on foot has the first right there. This does not mean that a person on foot may sit down or play about there. It means that, as the person on foot cannot move about as quickly as a cart or a motor or a bicycle, all drivers or riders must show mercy to the foot passenger by giving him time to get on to the path, or to the side of the road if there is not a path. But foot passengers have no right to loiter or to play in a place over which traffic should pass. The road is made for traffic, not for play. Unfortunately, no matter how well we ourselves know the rules of the road, we have frequently to meet people who do not know them, or are too lazy to observe them. This should make us doubly careful to see that we do nothing likely to create danger.

We ought always to realise that the man ahead of us, or coming towards us, may be ignorant or careless, and that only by our care can an accident be avoided. This need not make us nervous, and the nervous person on the road causes as many accidents as the careless, but it should serve to keep us alert and always on the look-out.

A safe rule for motorists is *Beware of the* other man, and it is a safe rule for us all.

From the moment we get on to the road until we leave it there is need of vigilance. In winding lanes we ought always to ride or drive close to the left side of the road, and to go as slowly round the curves as if we knew that we should meet an obstruction there. It is always best to expect to meet a vehicle at a corner.

Some of our country roads are highly dangerous to traffic. The ends of lanes are often hidden. Something comes out at the most unexpected moment, and, unless we are going cautiously, a collision is certain. Then there is the danger of open gates leading from fields, out of which cattle or carts may be coming, hidden from sight by high hedges, until the moment that we draw level with the gate. The danger of cattle on the highway, straying, or being driven to or from pasture is one for which we must always be ready.

The English rule of the road applies to the whole of the British Isles, but not to America and the countries on the Continent. There the vehicles are driven on the right side of the road, a fact which is very puzzling to English people on the first visit abroad.

#### Who is John Bull?

Many countries have nicknames and are represented in pictures by an animal. The British lion is the animal which stands for England, and John Bull is its owner and master. The lion is the country; John Bull is the nation. The name of John Bull comes from a work written by John Arbuthnot, a witty Scottish doctor and writer, a great friend of Swift and Pope. He was born in 1667 and died in 1735. The sketch he wrote dealt with the political affairs of Europe at the time, and the countries were made to appear as if they were men and women. England was John Bull, and Queen Anne was Mrs. Bull. The Church was Mr. Bull's mother. Scotland was John Bull's sister Peg. England was made to appear a man of very good nature, but not without faults. John was shown to be an honest, plain-dealing man, courageous, and rather hot-tempered. He was supposed to be always ready to meet the French king with any sort of weapon, in earnest or in play. He was very difficult to deal with, especially if anyone tried to master him; but, treated with kindness and a little flattery, he could be easily led.

But there was a John Bull in real life, a Doctor of Music who lived between the years 1562 and 1628. He is regarded as the composer of God Save the King. Nobody can be quite sure who did write the National Anthem, but there is reason to believe that the melody was found written down among the papers which Bull left. If he did write it it is remarkable that our National Anthem should have been written by a real John Bull long before the creation by Arbuthnot of a fancitul John Bull as the typical Englishman.

# Why Do We See Ourselves in a Looking-Glass?

A looking-glass is made with a layer of quicksilver behind it. If that were not there we could see through the glass as we see through the window; but the quicksilver prevents the light going through and sends it back again. The glass and the quicksilver are both perfectly smooth and flat, and we can see ourselves in anything that is perfectly smooth and flat, and that is able to throw the light from our faces back to us. We cannot see ourselves in what we call dull surfaces, because they keep the light; nor can we see ourselves in things with rough surfaces, because they do not throw the light back fairly, but scatter it in all directions. If we throw a ball against a perfectly smooth wall it will come straight back If we throw it sideways it will come off the wall in a certain way. We could easily throw it to the wall so that it would bounce off it at an angle to a friend standing farther along the wall. But if, instead of a smooth wall, we had a heap of loose stones to bounce the ball against, we could never tell where the ball would go.

When we stand opposite a good glass the light from our face hits the glass and comes straight back; but if we stand opposite something rough the light comes back this way, and that, and the other, as if we threw a handful of marbles against a heap of stones. In that way, of course, we cannot see ourselves; we can only see ourselves when the light of our faces strikes something smooth and flat.

A mirror throws the image back as a body throws its own image on the ground in the sunshine. But on the glass the image comes back light, and the shadow on the ground is dark, because it is made by our standing in the way of the light.

# Why is Lancashire the Cotton County?

Nature fashioned Lancashire to be the greatest cotton manufacturing county in the world. It is sheltered on the east by lofty hills, which, to a great extent, keep off dry land winds. From the south and west come winds which are moist and mild through passing over the Gulf Stream. The effect of this is that Lancashire has a very heavy rainfall, sometimes twice as heavy as that on the east coast. Naturally, then, the air of Lancashire is moist. This favourable air makes the cotton fibre soft and easy to handle.

#### Do People Rise to the Surface Three Times Before They Drown?

The answer to the question is no, and the old story that drowning men rise three times is entirely wrong. Sometimes people who drown do not rise at all—for instance, sometimes they strike their heads against something hard at the bottom. Usually they do rise, for our bodies are only very slightly heavier than water, and the movements of arms and legs, even of a person who is not a swimmer, will raise his body to the surface until he takes in so much water into his stomach and lungs that his body gets heavier and can rise no more. It is entirely a matter of chance how often, if at all, a drowning person rises. A diver in London once hit the water flat so that he was winded. He simply lay at the bottom, for he was unconscious and could make no movements. If everyone had waited for him to come up even once, he would have been drowned, but a swimmer dived in and brought him up, and he was soon all right. Here is a case which shows us that it is never safe to believe in oldworld traditions, however old or popular or pleasant they may be, without confirmation, though it does not follow from this that all tradition is untrustworthy. Indeed, many so-called superstitions have a basis of fact.

# Why Does Chloroform Send Us to Sleep?

All our consciousness depends on work done by the brain. A person who has breathed a sufficient quantity of chloroform or ether, or has had a large enough dose of alcohoi, cannot feel pain even when the skin is cut, because pain is really felt in the brain. and the brain of such a person is prevented from working. The question, then, is: How do anaesthetics, as these things are called, stop the working of the brain? We do not know much about it yet, but we know that such an anaesthetic as chloroform is made up of certain chemical molecules; we can prove that when chloroform is breathed these molecules pass into the blood as it circulates through the lungs, and so are carried by it to the brain. We know. too, that chloroform is a very volatile thing, and readily passes through the walls of the blood-vessels in the brain into the substance of the brain itself. There the chloroform molecules combine with the molecules of the brain, probably with the result that the brain can no longer use up the oxygen in the blood, and stops working.

#### Who Was the Maid of Saragossa?

Probably the fiercest resistance Napoleon ever met with came from the people of the old Spanish city of Saragossa, the capital of the ancient kingdom of Aragon. Early in 1808 French troops swarmed across the Pyrenees to make Napoleon's brother Joseph king of Spain, but though disorganised, the whole country rose as one man against the invaders. When the French laid siege to Saragossa, the people defended their city so desperately that the attackers had to draw off after suffering terrific losses.

But in the winter of the same year another French army appeared before the city, and it was in this second siege that Agustina, known as the Maid of Saragossa, won a heroine's fame. Her lover having fallen at his battery, she took his place, and her deeds of bravery were such that the whole garrison was heartened by them. Though Saragossa was eventually taken, Agustina and the gallant Spanish commander Palafox won a place for themselves in history by their stubborn defence against tremendous odds.

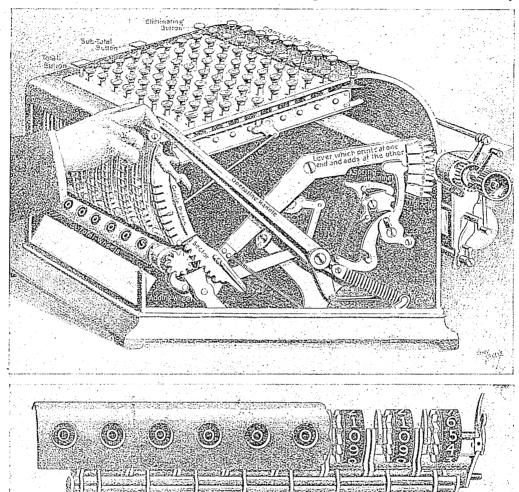
# Who Made the First Adding Machine?

In Ancient Greece and Rome there was an adding machine in general use, and it flourished almost unchanged down to the Middle Ages. It was called an abacus, and consisted of a smooth board with a narrow rim, on which were arranged rows of pebbles or pieces of bone or ivory. Later it took the form of beads or balls strung on wires, and this kind of adding machine is still in everyday use in many eastern countries from Russia to Japan. But as science advanced in Europe attempts were made to improve on the abacus, and in the seventeenth century Blaise Pascal made a calculating machine with trains of wheels, which worked somewhat on the principle of the cyclometer. The greatest advance, however, was made by Charles Babbage, an Englishman who died in 1871. He invented a very elaborate calculating machine, the drawings for which covered 400 square feet of surface. The Royal Society examined a small model of it, and reported so favourably that the Government voted Babbage £1500 to help him to perfect the apparatus. He worked hard at it, but after seven years the machine was still unfinished, although the Government had spent £7200 on it, and Babbage an additional £7000 of his own money. It was completed to work

#### WONDER

sums only up to five figures, and was shown of the Great Exhibition of 1862. A little later two Swedish scientists were so sure that Babbage's idea was practicable for large numbers, that hey worked at it, and after twenty years they completed a new

office work, owing to their cost, but several really clever and ingenious adding and calculating machines were at last evolved, working almost any kind of sum with unerring accuracy. Thousands of these are now in general use in all countries, and they



#### THE MACHINE THAT DOES ARITHMETIC

This wonderful machine prints a column of figures, adds them together automatically and prints the total. The upper picture shows the work of a lever, of which there is one for each column. When a key is depressed—say, 5, as in the drawing—the sector drops five points, being regulated by a slot wire attached to the key. At the same time the other end of the lever is raised 5 points, bringing an attached type figure 5 opposite the spring nammer. This nammer actuated by the operating handle, strikes the type figure and prints it. As the handle returns the rack on the sector engages with the cogs of the adding wheel turning the wheel five figures torward. Other figures are added to the wheel in the same way, up to 959,999,999 on the machine illustrated. The total is printed by ressing down a key and drawing down the operating handle. The lower picture shows the front of the adding wheels three being shown uncovered.

machine. The English Government paid £1200 for a copy of the apparatus, and this was set up in the Registrar-General's department at Somerset House, London, and was long used there. Such machines were so complicated as to be useless for ordinary

can be built and sold at a price which makes their use very economical. A column of figures which would take five minutes to add up and check, can be totalled in about half a minute on a machine of this kind.

# How Does a Sailor Know His Way in the Middle of the Ocean?

For centuries the sailor who ventured out of sight of land had only the stars to guide him, but as long as the stars are to be seen, they help the sailor on his way. From the northern hemisphere of the Earth, where the greater number of mankind and all the great nations of the past have existed, there can always be seen, when the sky is clear, the North or Polar Star, which indicates the north. Once this is known all directions are known.

There is good reason to suppose that, as in many other cases, the Polar Star has changed its position, even within the score of centuries or so that man has observed it. It is not now exactly due north, but apparently at one time it was so.

But, as everyone knows, the sailor nowadays uses the compass. The compass is a piece of iron balanced so that it can move freely, but it must be made of the kind of iron which is sensitive to a magnet. Now, the Earth is itself a huge magnet, having a north magnetic pole and a south magnetic pole. What we call the north pole of a magnetic needle always points to the north magnetic pole, and thus the sailor can steer his course with the help of the compass more accurately than if he went by the North Star.

#### What is Selenium?

Selenium is an element discovered in 1817, and named after the Greek word for the Moon, selene. It was given this name because it was so like another element, tellurium, discovered in 1782, and named from the Latin word tellus, meaning the Earth. In a playful mood the scientists likened the two elements to the Earth and its satellite. Selenium has long been used in the production of certain violet and red colours for glass and enamels, and also for bleaching glass which has a green tint; but its latest use is for the instrument that enables us to talk along a beam of light. The chief device in the new instrument is a telephone transmitter which sends a current into a piece of selenium. This element has the peculiar property of passing or stopping an electric current according to the amount of light falling on it. Inside the transmitter the speech sets up electric waves which produce vibrations in a beam of light, and in the receiver the vibrating beam is projected by a mirror on to a selenium cell through which the current of electricity is trying to pass. The electricity is affected by the vibrations of the beam of light, and as it is increased, modified, or stopped, the voice of the distant speaker is reproduced. When the mirr rs are all in position with a beam of intense light connecting them nobody but the operators can overhear the conversation carried by the beam.

# Why Does a Train Make a Noise In a Tunnel?

What do we mean by making a noise? Noise is produced by a large number of waves of sound so mixed up and combined that, though no musical note is formed. a mere impression of sound is conveyed to the brain. We all know how sound is made up of vibrations in the air. These vibrations travel through the air and gradually disappear. Noise, however, as well as musical sounds, can be intensified by interfering with the sound-waves. Thus a sound in a small room is apparently much louder than the same sound in an open space, although actually the volume of sound is no greater, the difference being that in one case the sound is concentrated instead of being dissipated in space. In the room the sound-waves are caught by the walls and thrown back upon our ears again and again, so producing the sensation of loudness. So with the train in a tunnel. As the walls of the tunnel are quite close to the wheels of the train, the sound produced is thrown backwards and forwards with great rapidity, instead of the sound-waves easily escaping as in the open, and the result is that an almost deafening noise reaches our ears.

#### What was Fortuna's Wheel?

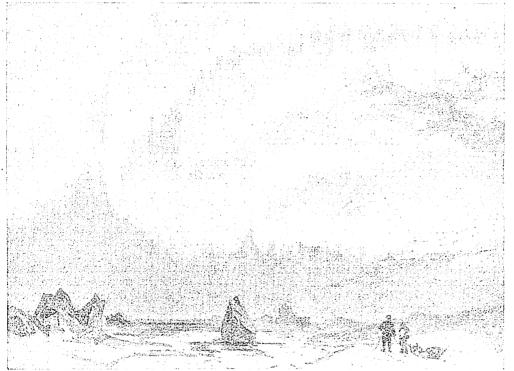
In the ancient world one of the most powerful gods after the dwellers on Olympus was Fortuna. She was the goddess of chance and dealt at will with riches and poverty, with happiness and sorrow. All human blessings or pains were supposed to be dependent on her, so that everyone worshipped her.

Asiatics, Greeks, Romans, adored Fortuna and built temples to her: Rome had two of them, crowded with rich offerings. On ancient buildings the goddess was sometimes figured as a blindfolded woman carrying a horn of plenty and standing on a wheel, a symbol of the inconstancy of fortune. Modern sculptors have often represented her with a rudder, meaning that she steers the course of Fate.

#### What is the Aurora Borealis?

The Aurora Borealis, or Northern Lights, seen in the Arctic regions of the northern hemisphere and sometimes farther south, are, like the Aurora Australis and the Auroral curtains of the Antarctic, caused by collisions between electric particles arriving from the Sun and the particles of rarefied gases on the outskirts of the Earth's atmosphere.

The Earth as it spins on its axis is like a revolving magnet or dynamo, surrounding itself with a field of magnetic force, which might be pictured in a diagram as provoked by special kinds of activity on the Sun, and more particularly by those which are associated with sun-spots. When sun-spots (which are electrical storms on the Sun) are in progress, there are emitted from the disturbed solar areas streams of charged electric particles which travel in straight lines. As they travel in straight lines from a given area on the Sun the streams may sometimes miss the Earth altogether. If, however, the Earth in its journey becomes immersed in one of these enormous beams or streams of particles, the Earth's magnetic instru-



THE WONDERFUL FORM SOMETIMES TAKEN BY THE AURORA BOREALIS OR NORTHERN LIGHTS.

DURING THE ARCTIC NIGHT

a sphere (the Earth) in a wire cage, of which the wires, representing the lines of force, curve outwards from one Pole to the other. If this cage of force is bombarded by a countless number of electric messengers arriving in streams from the Sun, its balance and order are upset. The result is a serious disturbance of the magnetic field.

But why do these phenomena appear at some times and not at others; and why are they seen at some places more than at others? The answer to the first part of the question is that they seem to be ments everywhere show that the magnetic field has been disturbed. At the same time the thin gases at the atmosphere's edge become more highly charged. The effect is of something the same character as when an electric discharge is sent through a tube of highly rarefied gas, such as is sometimes called a Crookes tube. In these tubes a glow appears, of a colour which depends on the thin gas which is there. The aurorae show glows which are like these vacuum tube glows.

The Earth as it revolves carries the charged outer gases with it, away from the

Sun and its electric battery; and on the dark side of the Earth a discharge takes place into the shadow; and so it continues until the stream of electric charges is cut off.

The reason why these phenomena appear in some places more than others has been answered by Professor Vegard of Chris-He supposes that the outer atmosphere in the auroral regions is so cold that the gases there (of which the chief is nitrogen mixed with argon), become frozen into very small crystalline particles. They are nearly as small as molecules, and the nitrogen mixture is something between a gas and a solid. In the regions where the aurora becomes frequently visible the conditions for this freezing into a solid of the outer particles in the Earth's atmosphere of nitrogen gas are specially favourable, and the results of the bombardment by electric messengers is more perceptible. Professor Vegard has been able experimentally to reproduce both the red and the green auroral glows by bombarding solid nitrogen with streams of electric particles.

#### Who are the Bluecoat Boys?

The boys of Christ's Hospital are usually called Bluecoat Boys owing to their quaint dress, which is a survival from that worn when Edward the Sixth founded the school in 1553. Originally the boys wore a blue woollen gown with a narrow red belt, kneebreeches, yellow petticoat and stockings, a clergyman's bands at the neck, and a blue worsted cap; but the cap and the petticoat were discontinued rather more than 50 years ago. The school itself stood in Newgate Street, London, for 350 years, but was removed in 1902 to its present site at Horsham in Sussex.

#### Who Invented Shorthand?

There is no historical record of the invention of any of the many systems of shorthand in any country or any period. Probably shorthand was written in Greece, and certainly in Rome, though the ancient methods were forgotten and brief examples that remain cannot be deciphered. Many systems have been practised in this country, since rapid writing was needed. England has indeed led the way in the attempt to make writing keep pace with speech. The earliest teachers, in Queen Elizabeth's day, were a Dr. Timothy Bright, who secured a monoply for his books for fifteen years, and Peter Bales,

who was a contemporary; but their systems demanded a prodigious memory. Shelton's system (1620) was the one used by Pepys in his diary. Many systems that followed were simply based on the alphabet; but some were phonetic, like Pitman's modern system. The best of the alphabetic systems was Taylor's, which used the vowel dot. Taylor's system was introduced, with variations, into France, Germany, Italy, Sweden, and Spain. Mason's system, modified by Gurney, became the official shorthand of the British Parliament in the nineteenth Byrom's system gained the century. protection of an Act of Parliament. Pitman's Stenographic Sound-Hand, now called Phonography, or sound-writing, was first published in 1837. It has been developed and made known with such care and skill that it has won the obvious advantage of almost universal use. Its special feature has been its insistence on a distinctly phonetic basis.

#### Why are Some People Colour Blind?

Consider first how we see. Light comes straight from a bright object, or is reflected from a dull one, into the eye in a train of vibrations. Think of a rope extending from an electric light to the eye, and imagine that the rope is being shaken violently from side to side so that waves of movement pass down it, becoming reduced to quite small ripples if the rope is thin enough, and is shaken fast enough. That is how light reaches the eye. The ripples of light go through various eyelenses, passing finally through the retina and coming up against a structure in the eye from which they are reflected through the retina again. On their return passage they influence another most important part of the eye, the rods and cones. The rods are like microscopic pencils, the cones like tiny flasks, the smaller end pointing outwards; and these two together form the outer end of the nerve which joins the brain, and which, when affected, gives the sensation of light. In the outer part of the rods is a substance named visual purple, which is sensitive to light, and is in fact altered when light falls on it, as the chemicals of a photographic plate are changed by light that falls on them. The change brought about in the visual purple is much the same as if an instantaneous photograph were printed on the cones and despatched to the brain. The visual purple will alter with any kind of light.

But among the one-coloured lights some affect it faster than others. It bleaches (and recovers) fastest when greenish - yellow rays fall on it. The blues are next most effective as bleachers: the reds come last. We may here remember that, so far as numbers of vibrations go, red light vibrates 395 billion times a second, and violet 763 billions. It is easy to understand that these great differences in number of vibrations would affect the rate of bleaching process in varying degrees, and most eyes would be able to recognise the difference. But if the visual purple is badly distributed, or is insufficient in quantity, the less marked differences in its bleaching (by different colours falling on it in vibrations) will not be recognised by the brain, and the person will be colour blind.

#### What is a Stalactite?

A stalactite is like an icicle, and is formed in something of the same way by water, which trickles down and hardens into a solid. In an icicle,



WONDERFUL SHAWL-LIKE STALACTITES IN YALLINGUP CAVE WESTERN AUSTRALIA



GREAT STALAGMITES AND LITTLE STALACTITES IN THE JENOLAN CAVES IN NEW SOUTH WALES

however, it is cold which is hardening the water into solid ice, while in the water forming a stalactite the hardening matter is contained in the water itself, which contains some mineral substance dissolved in it. In kettles and water-pipes this mineral is held in solution (as water holds dissolved sugar or salt) and the sides become coated with the mineral. In a stalactite the mineral gradually growsdownwards from the place where the drops begin to fall. stalagmite is merely a stalactite pointing upwards from the floor, usually of a cave, on to which the water is dripping and is formed in much the same way, climbing upwards instead of downwards. Frequently these things meet, and when this happens they make a wondrous natural spectacle in the gloom of a cave.

As the illustrations show, there are fine examples of stalactites and stalagmites in Australia; and the stalactite caves in the Cheddar Gorge in Somerset, England, attract visitors from all over the world.

### WHAT IS THE WORLD LIKE AT THE POLES?

The question can be answered quickly if we mean what could we see when looking around if we were standing at the North Pole or the South Pole.

At the North Pole we should be standing on a flooring of ice, perhaps flat, perhaps ridged and hummocky; and there would be no sign that anyone had ever been there before us. Around us, as far as we could see, would be ice—a world of white; and under the ice on which we stand would be a deep sea, probably three times as deep as Ben Nevis is high.

There would not be any American flag there, nor any inscription to show that Robert Edwin Peary, of America, was the first white man to reach the locality known as the North Pole. Whatever Peary left behind to assert his claim to the honour of having reached the place first, would long ago have drifted far away on the moving ice, and probably have sunk into the deep, cold sea that fills the hollow in the Earth's surface which exists at its extremest northerly point and far around.

For the Arctic Ocean, which fills the space within the Arctic Circle between Iceland, northern Norway, northern Russia, Siberia, Alaska, northern Canada, and the island of Greenland round to Iceland again, is always being slowly crossed by its floating burden of ice, drifted by currents and winds, and never long stationary over any part of its chilly depths. Sometimes open stretches of sea are left, but by and by the icefields close again on each other and grind and thrust their edges into hummocky ridges. So the North Pole may be where there is open sea, or it may be on a vast icefield.

If we were stationed at the South Pole the surroundings would be widely different from those at the North Pole. We should of course be surrounded by a white world of snow; but we should be standing with land underneath us and far around, on a lofty plateau twice as high as Ben Nevis, and with land stretching in all directions about us, probably to an extent almost equal to that of Australia. Instead of a great sea, as at the North Pole, the South Pole is in the centre of what may be called a continent. Another great difference is that while the Polar sea of the North is closed in by masses of land on all its shores—by Asia, America, and Europe, the Polar continent of the South is surrounded by wide oceans. It is not companioned by any other land of con-

siderable extent. The southern tip of South America is the nearest land mass. and next to that, except some scattered islands, is New Zealand.

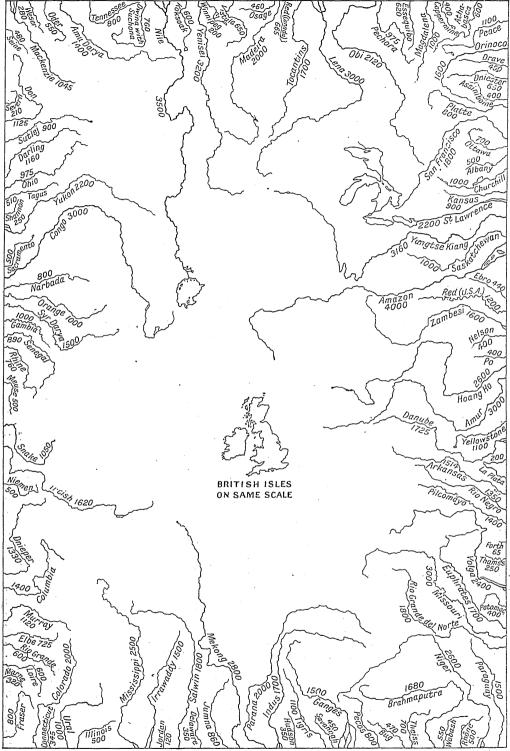
In consequence of its distance from other lands, and its bleak loftiness, the Antarctic continent is much more inhospitable than even the Polar ocean of the North. It is fringed round for wide distances, often hundreds of miles, by ice-floes through which ships approaching it have to break their way, and when the land is seen it is found to be fenced off from the sea by lofty cliffs of ice. On landing, voyagers find very few traces of life. No human being lives there. There are no land animals. The birds are of few species—chiefly penguins—and plant life scarcely exists. But the seas that wash its icy shores have a good deal of animal life—walruses, seals, whales, and dangerous forms of predatory fish.

This absence of life on the land within the Antarctic Circle is in striking contrast with what is found in the lands that surround the Arctic ocean. On the large islands that extend from the north of the Canadian mainland into the Polar sea, and are separated from each other by straits and sounds, a very considerable amount of both animal and plant life exists, right up to the edge of the ice-covered sea in the midst of which is the North Pole. In the brief summer, when the sun circles round the sky in one continuous day, and never sets, the snow melts to a large extent on those low-lying islands, and plant life springs up—though not in the form of trees—and affords pasturage for animals that have crossed the ice in The ground is also gay with winter. flowers in patches.

The Arctic fox and the wolf are there, and prey on hares and lemmings, which often are numerous. Ermine and other fur-clad animals migrate backward and forward with the changes of the season. Wild reindeer roam without much molestation, and herds of musk-oxen, the most characteristic animal of the region, tenant even the most northerly islands. On the shores, the Polar bear, stalking the abundant seals, is the animal king. A clever hunter can find animal food, ashore and in the waters.

This, however, is not true of Greenland, except around its coasts, for central Greenland is a lofty plateau capped deeply by ice—as lofty as the Antarctic

## 100 GREAT RIVERS OF THE WORLD



Here are over a hundred of the world's most famous rivers, drawn to scale. The length of each river is given in miles after the name, and the reason some appear out of proportion is that the total length depends on the windings, which cannot be shown here. The total length may be easily trabled by a meandering course. See page 6848.

continent—and bitterly cold. Central Greenland is colder than the North Pole.

One of the features of the Polar regions, in both the North and the South, is that in the cold seas an extraordinary amount of plant and animal life is generated, and floats, often on or near the surface, and on it many of the creatures that live in the sea feed. This life, which has the general name of plankton, nourishes creatures as wide apart in their structure and habits as the huge whale and the little stormy petrel. Especially is this sea food plentiful in the waters where the cold Arctic and Antarctic waters meet the warmer waters of the central oceans. That is why the seas around the Polar regions are among the most remunerative of the Earth's fisheries, and particularly are frequented by the whalers, whose daring captains have greatly extended our knowledge of the Polar waters.

Though to stay-at-home people the cold. and the constant dangers of Polar voyaging, appear repellent, yet it is a fact that men who have visited these strange " ends of the earth" are strongly drawn back again to them. All the Arctic lands are not cold at all times of the year, and conditions generally are healthy, ideas to the contrary being largely due to the thought of what severe Arctic conditions would be like if experienced in warmer parts of the world. One of the charms of the Arctic is the marvellous sky-scapes that they present to human wonder. As the Poles are approached the sense of the Earth as a planet in space, surrounded by the mysteries of the Universe, is made stronger, and the busy life of men in the midst of their anxious but often trivial affairs seems strangely commonplace.

# Who Were the Seven Wise Men of Greece?

The seven men the Greeks chose to consider as the wisest in their world were all renowned for their practical wisdom and wit, but the fame of only two of them has come down to modern times. The list of seven names usually given are Thales, Solon, Bias, Chilon, Cleobulus, Periander, and Pittacus, all of whom lived in the sixth century B.C., so that it is clear the number was drawn up long before the days of Socrates and Aristotle. Thales was, of course, the great geometrician and astronomer of Miletus, and Solon is famous as the law-giver of the Athenians; Peri-

ander was a severe and crafty tyrant of Corinth, but of the others little more survives than their names.

# Are the Rivers Always Growing Longer?

A river and its basin are not fixed and unchanging features of the Earth's surface. for rivers are constantly changing their beds, some more, some less, and they become longer or shorter according to whether they are cutting out straighter or more winding channels. It is on this account, and because of the many twists and turns, that it is so difficult to measure the length of a river. Even the length of a familiar and comparatively short river like the Thames varies in the various reference books between 215 and 250 miles, owing to differences in measuring the windings. In atlases a shorter river will often appear, on this account, as long as a river which is hundreds of miles longer. There is no apparent law governing the distribution of rivers except the position of slopes and the amount of rainfall. The Amazon and the Congo are both within the belt of almost constant rains. A big river must, however, lie in a large area of land, as Columbus knew, for when he entered the mouth of the Orinoco he at once declared that the country lying southward was a continent. A map of 100 rivers will be found on page 6847.

#### Who Was Duns Scotus?

The learned doctors of the Middle Ages were very fond of holding long and elaborate arguments with one another, often on points of no importance, and sometimes on subjects which seem to us ridiculous. Among the great doctors of those days Thomas Aquinas was the most famous, and he had many admirers who did no original thinking for themselves, but followed him in everything he said and wrote. At last rose a Scottish scholar who did think for himself, and would not follow Thomas Aquinas. This greatly annoyed the disciples of Thomas, and they hurled all kinds of ridicule and abuse at the new doctor and his followers. The Scottish doctor was born at Dunse, in Berwickshire, and he was called Duns Scotus. His disciples were called in ridicule, by the followers of Thomas Aquinas, "dunse men," and then "dunces," and even now, if we want to say a man has no real knowledge, we call him a dunce.

### The Story of the Beautiful Things in the Treasure-House of the World

#### The Art of Ages Past

WE have looked in these pages at the story of Art in its various phases. We have looked at the work of the painters whose pictures have become familiar to the world, some of them for centuries. We have looked at the work of the sculptors, who have taken the marble from the rocks and have fashioned it into wonderful and beautiful shapes. We have glanced at the work of the craftsmen who made beautiful things in metal and ivory and glass and wood. We have been able only to suggest the marvellous work that men have done in all these ways; but we have been able, we hope, to make it clear that the history of Art is one of the most enthralling stories in the world. Here we look at another chapter in this history, the story of the digging up of the buried remains of the ancient world and of the light it throws upon the arts and crafts of these days of long ago.

# DIGGING UP THE OLD WORLD

### 1. EGYPT AND MESOPOTAMIA

On the peoples of the past settles the dust of ages; so that nations which had kings and governors and built palaces, and made laws and raised monuments which they thought would endure for ever, have been lost and buried as completely as those still earlier peoples who first won for themselves a settled habitation and filled their homes with clay pots and pans.

By one of those chances with which the world is sometimes rebuked for its prideful knowledge, the despised pots and pans flung on the rubbish-heap when broken, often remain more trustworthy memorials of the buried past than the proud monuments on which kings inscribed their deeds.

The reasons for this are easily understood. The pots and pans of a primitive people were of the same patterns; there were enormous numbers of them. The simple peoples learned to paint and decorate them before they learned to write; they kept to the same decorations, and from these shapes and decorations we are able to tell who and what their makers were and when they made them.

In the course of ages writing was learned and forgotten; forgotten, perhaps, because it was not, like the potsherds, the common property of all. But apart from the writings on rock and tablet and clay brick

which have disclosed to long and patient inquiry the doings of kings and lawgivers, the peoples of the past unconsciously wrote pictures of their lives on the buildings they made, the roads they constructed, the ornaments they wore, their paintings and carvings, and the tombs in which they laid their dead. And these things have been disclosed by the spade.

Where did the earliest civilisation take root? It is a subject on which it is dangerous to offer a positive opinion, for at any time may come a new discovery which will overturn all our ideas of ancient history. Sir W. Flinders Petrie believes that the first great people were those of Elam in Mesopotamia. That may from geographical considerations be thought likely, because this region was settled and fertile before almost any other, and it afforded room for a large and peaceful population. As far as present knowledge tells us, the Elamites were making beautiful carvings of ivory when Egypt was populated by a people who belonged to the Older Stone Age. This age has been calculated at 7000 B.C., but most geologists would put it still farther back in time.

The next great civilisation was that of Egypt, to which, before it was established, the carvings and pottery of Elam were

PICTURES · STATUES · CARVINGS · BUILDINGS · IVORIES · CRAFTS

coming by way of Palestine. Professor Petrie exhibited in 1924, at University College, dishes, bowls, beads, and pottery figures made by a people who came, perhaps from the north through Palestine, 9000 or 10,000 B.C. He calls their civilisation the Badarian culture.

We may suppose that there were several places where civilisations sprang up and flourished independently, and that many centuries after such beginnings the civilisations mingled. Thus, after the Egyptian world was developing, Crete appears as an independent civilisation which can be traced back to 4000 B.C., when the Egyptians were building Pyramids, but it may have been older than that. Crete waxed and waned with the Egyptians; it was great 3000 B.C. and at its greatest 1500 B.C.

#### WHAT HAS BEEN

The three stages of the disclosure of an ancient civilisation are the exploration of the country where it flourished, the excavation of the sites of its greatness, and the reading of the meaning of the relics unearthed.

Egypt drew the explorers from very early times, and some, like Herodotus, described remains, such as the great irrigation lake of Moeris, which nobody else was able to find afterwards. But the first systematic exploration of Egypt began with a military expedition. Napoleon in 1798 took to Egypt with his Army of Conquest a number of draughtsmen and engineers whose work endured when Napoleon's dream had faded. The work was well done; the descriptions of Egypt continued to appear from 1809 to 1813. A second survey by the great French archaeologist Champollion, aided by Rossellini, was made by 1828. This made known all the country below Assouan to Alexandria. Later in the century Lepsius surveyed the other part of Egypt from Nubia to Khartoum, as well as Memphis and the Egyptian mines in the Sinai Peninsula.

The deciphering of the inscriptions on the antiquities laid bare went on even while the country was being explored. The great discovery of the Rosetta Stone described on page 6596, thanks to the labours of De Sacy, Akerblad, Dr. Thomas Young, and especially to the work of Champollion, provided the key to the hieroglyphic alphabet, so that all the written history of old Egypt as inscribed on its monuments could be read.

After this China appears with a civilisation of its own which it may have taken from Persia or Babylon, but which has always had a character of its own. Next after that was the North Syrian, which the Egyptians, to their surprise, found well established when in 1500 B.C. they invaded the country by way of Palestine and met the Hittites.

Knowledge of these civilisations, earlier or later than that of Egypt is slowly being gathered in by the archaeologists from the results of excavations. But because the way in which this science is pursued had its first impulse in Egypt, and because the history of that country is better marked than any other, it will be more convenient to begin with an account of the way in which that history was disclosed.

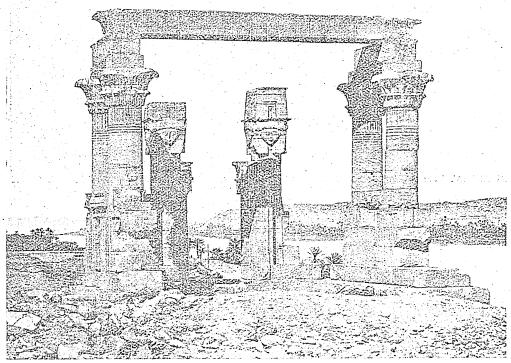
#### FOUND IN EGYPT

Lepsius followed Champollion, and was followed by Mariette, another Frenchman of determined genius. Mariette was a poor French schoolmaster at Stratford-on-Avon before he was twenty, and used to design patterus for ribbons for a silk manufacturer at Coventry. He went back to France to take his degree, and became entrusted with the Egyptian discoveries of Champollion. Then, when still under thirty, he was fired with the idea of going to Egypt to search for manuscripts.

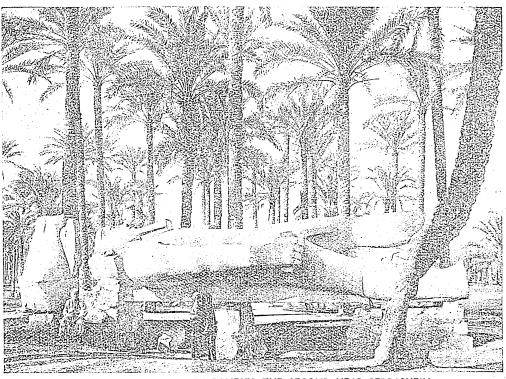
Instead of manuscripts he found at Memphis the ruins of the Serapeum, with the sacred bulls of Apis; he disclosed the Temple of the Sphinx at Gizeh and the great cemeteries at Sakkarah. To Mariette is due also the clearance of the temples at Abydos, at Der-el-Bahari, and at Edfu. He laid bare the vista of the columns of Karnak. It was there he found a beautiful statue of the temple's god Amon, beside the knee of which stood the headless figure of a boy thought to represent Tutankhamen, or Tutankh-amon, as some Egyptologists spell his name. He gave the statue to Prince Louis Napoleon, at the sale of whose Egyptian collection it was bought in for £20, though years afterwards the Louvre was glad to get it for £10,000.

To Mariette succeeded Gaston Maspero, who had begun to teach himself to read hieroglyphics when he was fourteen. When Mariette heard of him seven years later he could decipher them so readily that he passed for a wonder among his fellow students. Some of these, meeting Mariette at dinner, told him of this feat and he

### RELICS OF EARLY CIVILISATIONS



A TEMPLE OF ISIS IN EGYPT

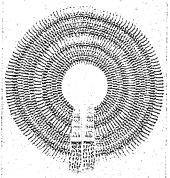


THE GREAT STATUE OF RAMESES THE SECOND NEAR BEDRASHEIN



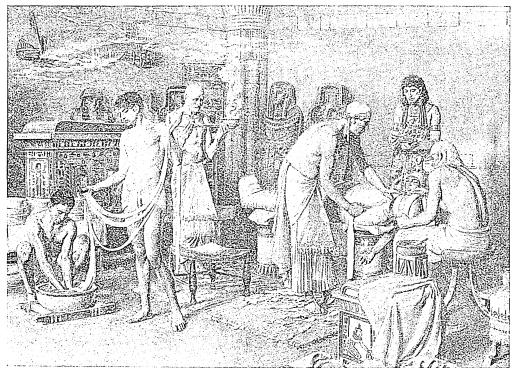








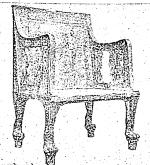
AN ANIMAL WHICH ADORNED THE KING'S COUCH, A COLLARETTE, AND A HEAD FROM THE CORONATION CHAIR, FOUND IN TUTANKHAMEN'S TOMB



A SCENE IN ANCIENT EGYPT—THE MASTER OF CEREMONIES SUPERINTENDING THE WRAPPING OF A ROYAL MUMMY



A PANEL OF TUTANKHAMEN'S CORONATION THRONE



THE CHAIR OF QUEEN TIYI 6852



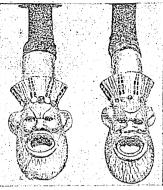
THE UPPER FRONT PANEL OF ONE OF TUTANKHAMEN'S CHARIOTS

#### Children's Encyclopedia

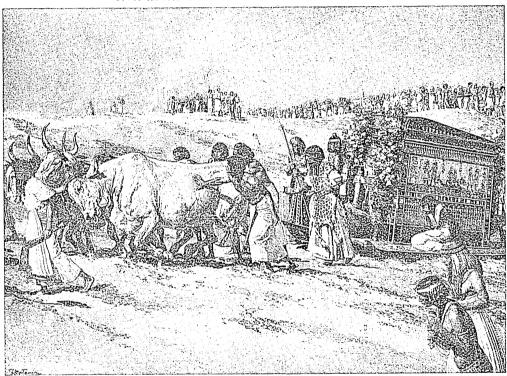
#### Gallery of Art







THE CORONATION THRONE, A WOODEN EFFIGY OF THE KING, AND PARTS OF THE HARNESS OF A ROYAL CHARIOT. FROM TUTANKHAMEN'S TOMB



A SCENE IN ANCIENT EGYPT—REMOVING THE ROYAL MUMMY FROM THE PALACE TO THE TOMB



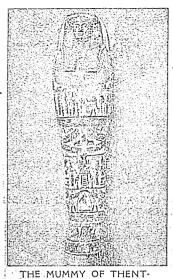
A SILVER BRACELET OF QUEEN TAUSRET OF EGYPT

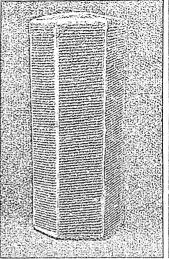


THE DELUGE TABLET, FROM NINEVEH 6853

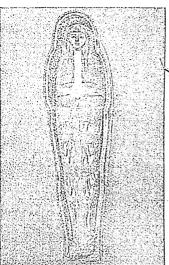


A COPPER LION DISCOVERED AT UR

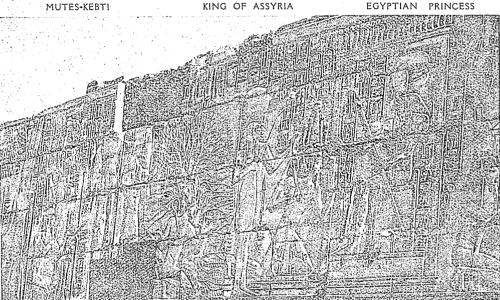




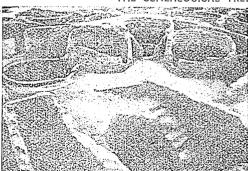
A CYLINDER OF SENNACHERIB. KING OF ASSYRIA

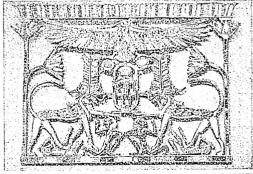


THE MUMMY OF AN EGYPTIAN PRINCESS

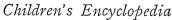


THE GENEALOGICAL TREE OF RAMESES AT KARNAK





SPIRAL STEPS LEADING TO A WELL IN A AN INLAID GOLD PECTORAL OF A KING OF EGYPT HOUSE AT TEL-EL-AMARNA. OF THE TWELFTH DYNASTY OF THE TWELFTH DYNASTY

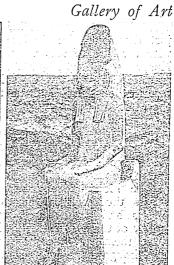




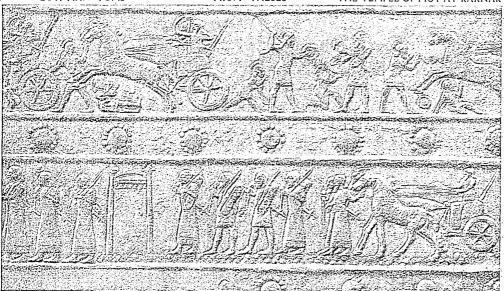
A WOODEN FIGURE FROM AN EGYPTIAN TOMB



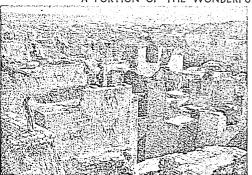
A WALL PAINTING FROM THEBES



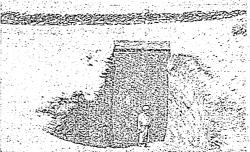
A LION-HEADED FIGURE FROM THE TEMPLE OF MUT AT KARNAK



A PORTION OF THE WONDERFUL BRONZE GATES OF BALAWAT



RUINED WALLS OF OLD BABYLON



THE ENTRANCE TO THE SERAPEUM AT MEMPHIS

The pictures on these pages of objects from Tutankhamen's tomb are from The Times World Copyright Photographs, by Mr. Harry Burton; other pictures are reproduced by courtesy of the E.N.A., Dr. Hall, and others

handed them an inscription, which he had just discovered but had not translated, with the amused suggestion that perhaps Maspero would try his hand at it. Maspero translated it; a few days later he performed the more difficult task of supplying the missing parts in a fragmentary inscription.

## THE MUMMIES WHICH CAME TO LIGHT AFTER THOUSANDS OF YEARS

Maspero succeeded Mariette in 1880; and in the next year he made the discovery of the hiding-place of royal mummies which thousands of years before the priests had secretly removed from the Valley of the Tombs of the Kings to preserve them from the sacrilege of robbers. But though the plan saved them for many hundreds of years the robbers found the burial place at last, and stealthily, slowly rifled it, selling the relics cautiously to travellers. One day some pages of an illuminated papyrus were shown to Maspero, who knew at once that they could have come only from a royal tomb and learned that they had been bought at Thebes. He persuaded the authorities to set their secret intelligence department to work, and suspicion pointed to four Arab brothers who lived in some deserted tombs. One was thrown into prison. He refused to speak. Maspero offered a heavy reward. It tempted another brother, and the Arabs agreed to lead the way to the hidden tomb.

Maspero sent down Loret and another Egyptologist from Cairo, and the two, atter meeting the Arabs at Der-el-Bahari, where Queen Hatshepsut built her famous valley temple, were taken below the cliff to where a great boulder had fallen. Behind the boulder the Arabs had found the secret way. It was a perilous and mysterious way, too, a black shaft forty teet deep leading to a tunnel where the explorers had sometimes to go on hands and knees. A corner was turned, another passage, a flight of steps in the rock, and at last they found a chamber piled and lined with mummy cases.

#### THE STRANGE PROCESSION OF KINGS AND QUEENS OF OTHER DAYS

Another black tunnel sloped downwards to a chamber filled with such an assemblage of royal mummies as no Egyptologist had ever set eyes on before: Rameses the Second, Thothmes the Third, Seti the First, eleven kings in all and nine queens. It suirred the discoverers to instant action.

They collected 300 natives and in two days had removed all the munmies, wrapped them in sail cloth, and transported them to Cairo.

That was one of the strangest adventures in Egyptian discovery; but in importance it was not greater than Maspero's opening of the pyramid of Unas at Sakkara about the same time. On the walls of this Fifth Dynasty chamber were found inscriptions of texts, rites, and incantations which were of inestimable value for the study of the Egyptian language and of the early religious ideas of the priesthood.

Mariette, the real founder of excavation in Egypt, was also in a position of exclusive authority which was not the privilege of his successors. In consequence innumerable statues, paintings, papyri were gained by France as well as by the Cairo Museum. But since his death, although the Cairo Museum still reserves the right to keep in Egypt anything that is found there, other countries, Great Britain, the United States, and Switzerland have been allowed to excavate; and the work of the English Egypt Exploration Fund and Society, begun in 1883, is a witness to the value to knowledge of this permission. The efforts of the various nations have produced an extraordinary amount of knowledge as well as of wonderful objects, and the end is far from having been reached, as the discovery of the tomb of Tutankhamen and its unrivalled and almost untouched assemblage of funeral regalia serves to show.

#### THE ANCIENT GREEK CITY FOUND IN THE DESERT OF EGYPT

The discoveries include the finding by Professor Petrie of the sites of Tanis and the early Greek city of Naukratis in 1884-85, to which the clue was given by an Arab who offered Petrie part of an alabaster statuette which the professor recognised as Greek work. The Arab said where he had found it, and Petrie, after a journey of twenty miles from the railway into the desert, found many mounds scattered with Greek pottery. When next year he came back to excavate, almost the first stones he turned over were part of a tablet with a proclamation of the city of Naukratis, a place so long lost that its existence was doubted. The discovery by Petrie at Hawara of the sarcophagus containing the mummy of the noble Horuta, wrapped in a network of beryl, lapis lazuli, and silver, with its amulets and

#### DIGGING UP THE OLD WORLD

ring, and birds of gold, is a romance in itself, but a romance of immense labour and determination, for the sarcophagus was in a flooded chamber at the bottom of a shaft forty feet deep.

But far more important as revealing the forgotten past were the discoveries at Tel-el-Amarna, which began with the clay tablets on which were inscribed letters sent by the king of Babylon to the king of Egypt. They were accidentally picked out by an Arab woman who was searching for trifles to sell to tourists. In them is mentioned a present of some couches which may be the very objects afterwards found in Tutankhamen's tomb. other things were found at Tel-el-Amarna in the ensuing years of excavation. The most impressive were the relics and tablets of Akhnaton who was called the Heretic King because he renounced the old gods of Thebes and commanded men to worship one god, the Sun. The suffix of his name Aten, the Disc, indicated his creed: and he brought a new spirit into Egypt. But after his death Egypt went back to the old worship of the gods of Amon, or Amen.

Between these discoveries came that by E. H. Naville in 1887-89, of the site of Bubastis, a place known to Herodotus and rich in statuettes; and Petrie's excavations in the Fayoum which at last showed where the fabled Labyrinth of Herodotus and Lake Moeris must have been. Many remarkable Greco-Roman mummy portraits were found here and the first great collection of papyri in Greek and Roman characters. De Morgan found the treasures of the Pyramids of Dahshur, a mass of pectorals, rings, bracelets, necklaces, chains, pendants, and diadems that belonged to

the wives of three of the pharaohs of the Twelfth Dynasty. One of these that belonged to the wife of Senusert the Third is marvellous in its taste and dexterity of workmanship, a miracle of gold threads and jewelled flowers so fine that it could never have been worn, but must have been made to lie on a tomb.

Then came the tombs of the kings of the early Dynasties at Abydos, which Amélineau first opened, to be followed by Petrie and Naville in later years. To Petrie in 1896 fell the discovery of the inscriptions of the King Meneptah which referred to Israel.

There followed a set of discoveries which put back the Egyptian clock thousands of years to the race that possessed Egypt before the Dynastic kings. The relics of this pre-dynastic people were first found by Petrie at Nakadah in 1895-96. They were a race which buried their people crouching in graves surrounded by blacktopped ware and hand-made pottery going back to the Stone Age. This opened up a new vista of the origins of Egypt quite distinct from those who cut in the rock the tombs of the kings near Thebes. Later came Petrie's discoveries at Badary in 1924 of the oldest civilisation known, II,000 B.C.; and Mr. Firth's identification near the Step Pyramid of Sakkara of the oldest stone building in the world.

Other excavations were those of the tomb of Osiris at Abydos, which Naville found, and those due to the same archaeologist at the Temple of Der-el-Bahari where the diggers almost stumbled on the hidden chamber where stood the Goddess Hathor in the shape of a cow, one of the most beautiful and impressive pieces of sculpture of the ancient world.

#### WHAT HAS BEEN FOUND IN MESOPOTAMIA

As in Egypt so in Mesopotamia the history of its peoples remained a sealed book till the nineteenth century. The tradition of the site of Nineveh near Mosul and Baby on near Baghdad remained, and many travellers, including Niebuhr, had gazed on the heaps that covered them. The first to survey them carefully was C. J. Rich (1787), who lived as the agent of the East India Company in Baghdad for thirty years and who in that time prepared the field for later explorers by carefulstatement of the gigantic remains of the lost cities and civilisations of the Assyrians, Babylonians, and their pre-

decessors. Niebuhr had surveyed Persepolis in 1765; and these pioneers were followed by Buckingham, Porter, Mignan, and Fraser, but it was not till (as in Egypt) a military expedition was in the country that exact knowledge of the sites was placed before the world. General Chesney's mission in 1835 was peaceful, but it carefully surveyed the courses of the Tigris and the Euphrates, and all later explorers used Chesney's maps. The surveys of Assyria by J. F. Jones and of the site of Babylon under Selby which were made later were also of great value and interest to archaeologists.

Excavation had not yet begun, but the extensive rubbish heaps of the rums yielded clay tablets and bricks inscribed with unknown characters. There seemed something like a parallel between these characters and the threefold characters of the Rosetta Stone of Egypt, but they presented a far more difficult problem than faced the interpreters of the Egyptian hieroglyphics. The three Babylonian writings were made out to be Old Persian with perhaps 40 symbols or letters; a more difficult writing which should be that of the early Mesopotamians, the Susians, or Elamites; and a still more elaborate writing distinguished as Babylonian. All the help for deciphering them in 1802 lay in the fact that the three writings were often found side by side.

In that year Grotefend, by picking out three royal names in the simplest of these forms of writing, took the first step, and he ascertained about one-third of the old Persian letters. But his essay on the subject, refused publication by the Göttingen Academy, was not published till ninety years later, when others had had all the credit as well as the work to do over again. It is remarkable that the first unravelling of cuneiform should have begun in the same year as that of the Egyptian hieroglyphics. Twenty years afterwards a vase was found to bear hieroglyphic and cuneiform characters.

## S IR HENRY RAWLINSON'S DISCOVERY ON THE ROCK OF BEHISTUN

In those years much progress was made by De Sacy in reading the Old Persian; and then in 1835 came Sir Henry Rawlinson, who was the Champollion of the cuneiform inscriptions, and who in his researches was aided by a knowledge of the ancient tongue of Zend, just as Champollion had known Coptic. Rawlinson, like Chesney, a soldier, was in Persia on diplomatic duty, and he had the true intelligent curiosity of the man of science. He knew nothing of Grotefend's previous work, but he found the key to the cuneiform inscriptions on the Rock of Behistun in 1846 in much the same way, through fitting together two inscriptions in different scripts, identifying the names of Hystaspes, Darius, and Xerxes, and thence deducing the alphabets of Old Persian. He first got 14 letters, and the deciphering of this, the simplest cuneiform, was a matter of time. The dramatic story is told on page 6262 of this work,

Others were now following: Dr. Hincks, an Irish clergyman of immense scholarship, who stands first as the examiner of the second and third script characters, Oppert, De Saulcy, and Talbot. So strange, almost to the point of being incredible, seemed the reading of these ancient characters, that there were doubters. These were silenced when, in 1857, a newly found clay cylinder inscribed with the characters was brought home from Mesopotamia and submitted to Rawlinson, Hincks, Talbot, and Oppert for independent translation. When their translations were unsealed they all gave the same version of the story of Tiglath-Pileser graven on the cylinder.

#### THE EARLY CIVILISATION BORROWED BY THE BABYLONIANS

Only one step more in the unravelling of the dead languages need be recorded here. Hincks saw that these cuneiform writings of Babylon had come from some other source. So it seemed that this early Babylonian civilisation had been borrowed from another, the people of Sumer, or Akkad. The second group of cuneiform characters is now recognised as a late form of the old language of Susa or Elam. But whether the oldest language is that of the Sumerians or Semites is not known.

Naturally a tide of excavation followed in Mesopotamia the deciphering of the inscriptions, though it had begun with Paul Botta, the French Consul at Mosul, who in 1842 had turned an inquiring eye on the great mounds of Kouyunjik and Khorsabad. At Kouyunjik, the reputed site of Nineveh, he had no fortune, but one day a good-natured Arab looking inquisitively at Botta's men at work asked what they sought, and, being shown a brick with the cuneiform characters on it; remarked laughingly that there were thousands of them at his village of Khorsabad. Botta was doubtful, but he sent workmen to sink a shaft there. They had not gone far before they came on a wall.

### AYARD'S AMAZING ADVENTURES ON HIS JOURNEY TO THE EAST

Botta hastened to the spot and digging was resumed furiously; and as the upshot of these labours they unearthed a crumbling building with slabs on which were sculptured fighting men. There were the ruins of the great palace of Sargon which crumbled as it was disclosed, for it had been destroyed long ages ago by fire.

Among the friends of Botta was a young Englishman, Austen Henry Layard, whose

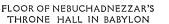
#### DIGGING UP THE OLD WORLD

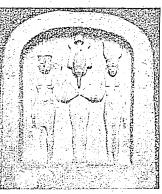
mind wandered from the study of the law to the fabled East.

After his father's death, Layard was asked by his uncle, a coffee planter in Ceylon, to join him there, and the young man jumped at the chance, but resolved on seeing as much as he could of the East by travelling overland. While he was still on the east of the Jordan the Bedouins captured him and he was a slave for six

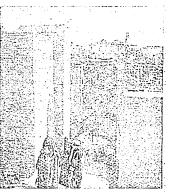
who wanted to tour Asia Minor. Layard once again had funds enough to reach Ceylon, but he got no farther than Mosul, near Khorsabad, where Botta was excavating the Palace of Sargon. Layard sent to London an account, with drawings, of the discoveries asking for funds to make excavations of his own. James Fergusson, the writer on architecture, and John Murray, the publisher, talked them over,



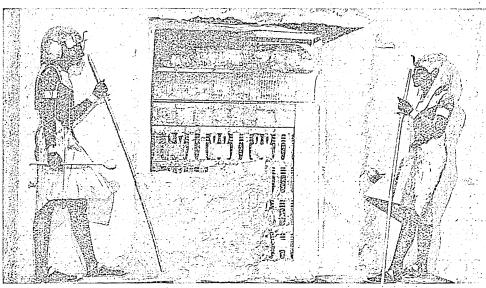




THE GODS HORUS, OSIRIS, AND ISIS



ROAD TO NEBUCHADNEZZAR'S THRONE HALL



THE SHRINE IN THE INNER CHAMBER OF TUTANKHAMEN'S TOMB

months. He escaped, and at last reached Damascus in rags and half-starving. The British Consul sent him on with a little money and some clothes, and he tramped his way through Asia Minor to Constantinople. There, as he afterwards told Professor Sayce, the British Ambassador Stratford Canning, afterwards Viscount Stratford de Redcliffe, found him a post as travelling guide to a young Englishman

and according to Professor Sayce were the first to start a small private subscription which brought old Assyria to light.

Provided thus with funds, Layard set out on the dangerous road to Mosul again, and in a fortnight had set diggers to work at the mounds of Kouyunjik that had been given up by Botta as a bad job. Here Layard found the unexampled treasures which are now in the Assyrian halls of

the British Museum. Layard induced Stratford Canning to stand by him with the Turkish authorities, and the Sublime Porte gave permission to ship the sculptures home. So now in Bloomsbury stand remains of the palaces built by Shalmaneser the Second, and Garhaddin Ashurnasirpal the Second; the huge winged bulls which guarded the gateway, and one of which seemed to the astounded Arab whose pick first lighted on it to be the image of mighty Nimrud himself; the sculptured lions of the Throne Rooms; the black obelisk of Shalmaneser. Layard was too successful for the Turkish authorities, and his difficulties increased with his successes. But he went again on a second expedition in 1849-50, and this time, searching anew Botta's site of Kouyunjik, found the palace of Sennacherib buried so deeply that it had to be approached by side tunnels. Here were more sculptures and the first of those great and varied stores of graven annals, the palace libraries. His work in Assyria was almost done.

## THE IMPORTANT DISCOVERY MADE BY A NATIVE WITH LAYARD

It was followed up, however, by one of his native companions, Hormuyd Rassam, a cultured and able man who almost as soon as he began found the palace of Ashurbanipal, more familiar perhaps under the Greek name of Sardanapalus, with sculptures and the library. It was many years before such good fortune again awaited him, but before his work ended thirty years later he had found the bronze gates of Balawat and had partially disclosed the site of Sippar.

Layard had meanwhile transferred his attention to Babylonia, where Loftus had begun at Erech in 1854. There was nothing quite so immediately startling here as at Nineveh; but knowledge of language and religion was piled up, and apart from Taylor's excavation of the temple of the Moon God at Ur of the Chaldees the most striking thing for a number of years was Rawlinson's examination of the tower temple of Nebuchadnezzar which, though built much too late to be the Tower of Babel, has often been identified with it.

The tablets, the sculptures, the inscriptions piled up were now beginning to be described and deciphered by scholars and historians. Cne day in 1872, Mr. George Smith, a worker at the British Museum and a man of great gifts, startled the Society of Biblical Archaeology with the words,

"A short time back I discovered among the Assyrian tablets at the British Museum an account of the Flood." It was true, and the world soon joined in the Society's astonishment. This was the first of those discoveries which confirmed in many ways the Bible story in the first chapters of Genesis. George Smith was sent out by public subscription to explore further the mound of Kouyunjik whence the Flood tablet had come. He brought back many literary treasures. Unfortunately he died on the eve of a second expedition.

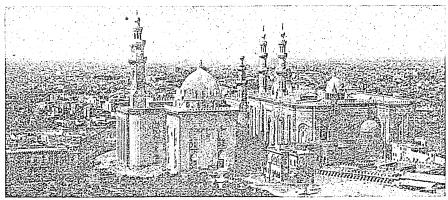
#### THE RELICS WHICH OPENED UP A NEW CHAPTER IN THE WORLD'S HISTORY

After this new light had dimmed a little the archaeologists returned to Babylonia; and here at last a search which had not been very successful was rewarded. De Sarzec, the French consul at Basra, was one of those who joined luck to insight. He excavated the mound of Telloh, where the Babylonian city of Lagash had been. There had been kings in Lagash before Babylon. De Sarzec found the sculptures and relics of Gudea and the mighty ones who had ruled in Sumer. At once a new chapter in the world's history unknown and unsuspected was opened. It revealed ancient and forgotten rulers of Sumer and Akkad; it showed where the origin of the ancient cuneiform writing had been; it pushed back farther the beginnings of the history of the world of cities, of rulers, of laws, of civilisation. Since then the work has been enlarged by seekers of all nations, Germany and the United States coming in with energy and skill; and in 1924 at the city of Ur of the Chaldees, Dr. Hall, of the British Museum, joined forces with the Research expedition from Philadelphia to disclose in the Temple of the Moon God its wooden staircases and the first bronze statues of a sacred bull that are known. Here too were found the inscriptions of A-An-Hi-Pad-Da, King of Ur, a thousand years before Pepi, the first King of Egypt.

#### DISCOVERIES WHICH TELL US OF THE WORLD IN OTHER DAYS

The Germans under Moritz and Koldeway have told us much from their excavation at Surghul of the old Sumerian kingdom; De Morgan, of the Persian Mission at Susa, beginning in the closing years of last century, found the great obelisk of the Manishtusu, King of Kish; and, above all, the world-famous code of Hammurabi, one of the most wonderful discoveries that the records of archaeology can show.

The Story of the Peoples of All Nations and Their Homelands



The minarets that rise above Cairo

#### EGYPT AND ITS 100 CENTURIES

While the mountains of Abyssinia and East-Central Africa send down their waters in the spring and early summer to flood and fertilise the narrow valley of the Nile and its delta, it will remain a long oasis through the barren desert which makes a belt across the world from Morocco to China.

It has been felt to be a favoured land as far back as human records go. Long before Britain had a name on the tongues of civilised mankind Egypt was great, powerful, and rich, and the ruins of her glory remain one of Earth's wonders.

Yet in the seventies and eighties of the last century, with all the advantages of modern inventions and knowledge to help her, she was burdened with debt, misgoverned, oppressed, and an object of pity for less-favoured nations. Within thirty years her recovery was complete. She had become one of the most prosperous of the nations. The change might well be called a miracle.

The secret of it was that, as the country commanded the chief sea-way to India and the East, Great Britain could not afford to have it sink into utter failure through bad government; and the other leading European countries, having lent freely to Egypt, were willing

that Britain should take such steps for purifying a corrupt government as would make their loans secure. Therefore when our country, for the world's good, took command in Egypt, the world assented, and left us the trouble and expense of being Egypt's saviour, and making everybody's investments safe. The success of that enterprise, under the fine supervision of Earl Cromer, was amazing, and it ended in an offer to Egypt that, assisted by British guidance in foreign affairs, she should resume the task of governing herself, and start a new era in her long life. After the Great War, therefore, Egypt set out on a new career as a self-governing State once more.

The strictly modern part of Egypt's history begins with Mohammed Ali, an Albanian pasha who seized power early in the nineteenth century, after the close of Napoleon's invasion of Egypt. In 1811 he founded the present ruling House of the Egyptian Khedives. Successful in war, he conquered a considerable part of the Sudan beyond the bounds of Upper Egypt, Arabia, Palestine, and Syria, and even gave Turkey help in Europe against Greece. Later he was obliged to fall back on his own land, and hold Egypt as a country paying tribute to Turkey.

Q 10

THE FIVE CONTINENTS & 100 NATIONS & RACES THAT INHABIT THEM

It was the extravagance of the family successors of this warlike Egyptian ruler that plunged Egypt into debt, and with burdensome taxation, thievishly gathered, so harassed the peasants who produced the wealth of the nation that the European nations stepped in and took control of the money affairs of the Egyptian Government.

#### THE RISE OF THE MAHDI AND THE DEATH OF GORDON

Before this the Suez Canal, nearly 100 miles long, had been cut across the isthmus uniting Africa and Asia, and had admitted large seagoing ships from the Mediterranean to the Red Sea. This great work of the French engineers, under the famous Frenchman, De Lesseps, was so valuable that all countries desired to be insured against disorder and bad government in Egypt, lest the canal should be damaged or blocked to shipping.

When, however, an insurrection broke out in 1882, and the Egyptian army, commanded by Arabi Pasha, mutinied and entrenched themselves at Tel-el-Kebir, it was only the British, under Lord Wolseley, who would undertake to restore This they did by storming the Egyptian position, and sending Arabi into exile. In the next two years, when the Sudan revolted against Egypt under a religious leader who called himself the Mahdi, and besieged in Khartoum the British General Gordon, who had undertaken to enter the country and make it peaceable, it was a British army that prevented the fertile valley of the Nile from being overrun by the fearless warriors from the deserts, who struck terror into the hearts of the Egyptians.

## HOW EGYPT CAME UNDER THE PROTECTION OF BRITAIN

Though an army under Lord Wolseley was too late to rescue Gordon in Khartoum, where he was slain, the British held the Sudanese back from an invasion of Egypt, until Kitchener had formed an Egyptian army which seconded the British army in overthrowing the Mahdi. The Mahdi himself was killed, and Khartoum has now become a centre of education for the Sudan, connected by railway with Lower Egypt, and presently to be connected by railway with the African Lakes, Rhodesia, South Africa, and Cape Town, with branch lines striking off eastward to the Red Sea and the Indian Ocean, and westward to the Atlantic Ocean.

Thus Britain found herself drawn into Egypt for its protection, and the protection of the peaceful trade of that part of the world and the countries beyond; and she was obliged to treat it as a Protectorate under her control. But she did not wish to take the country as her own.

The good management of British Civil Servants and officers had brought Egypt from poverty to wealth, from war to peace, from ruin to a full purse, from dependence on the weather to a surer water supply, from the means of travel of a thousand years ago to the swiftness of the railway train, from weed-matted rivers to open waters frequented by regular steamers. But when the Egyptians felt themselves able to take over the management of their own national business again, Britain expressed her willingness to withdraw, leaving a thousand blessings behind. Whether the change will work well the Egyptians have yet to prove. All Britain hopes it will.

#### The mighty nile and the wonderful fertility it gives to egypt

Egypt is a country well worth protecting and helping, both for its own sake and for the world's sake—for what it is as well as for what it has been. It is a rich land, with abundant, oft-recurring harvests. Yet the area of its productive part is very small, merely alongside the Nile. Though Egypt, including its outlying deserts, occupies 360,000 square miles, or about seven times the space of England, the Nile valley and delta, where the Nile broadens out through canals towards the sea, is only about twice the size of Wales. Yet there is a population of nearly thirteen million people. The country is, therefore, very thickly and very thinly peopled in different parts.

Its great ancient cities are populous. Cairo, the capital, has about 800,000 inhabitants; Alexandria (once the most learned city in the world) has 450,000; and Port Said, at the northern entrance to the canal, has nearly a hundred thousand. Other towns are comparatively small.

The products of Egypt are all agricultural (cotton, sugar, rice, tobacco, maize, wheat, barley, and millet) and so helpful is the climate that it allows three crops yearly. The area farmed by each worker is small, for, out of 13 million people there are about two million landowners.

The life of the people everywhere remains, in spite of modern inventions, much

#### PEOPLE WHO LIVE IN EGYPT







AN ARAB GIRL OF EGYPT

A SMILING LITTLE MAIL

A NATIVE GIRL OF ALEXANDRIA



A CLASS FOR LITTLE CHILDREN IN A NATIVE SCHOOL



A HAPPY MOTHER AND HER CHILD



AN OLD WATER-SELLER 6863



A NUBIAN FRUIT-SELLER OF CAIRO

the same as it was in the distant past, and may be imagined from many of the features in the history of this ancient land that must now be recalled.

When we glance at Egypt as it is today we are reminded at every turn of a great and wonderful past. Its true glory lies in distant times. Grand and immense buildings, such as those we see by the banks of the Nile, exist only as the result of the movement of material-hard and laborious work, indeed-by thousands of human beings. We must realise that a pyramid is solid, except for the passages and the funeral chambers to which they lead. Few care to penetrate into the heart of one. The next time we walk across Lincoln's Inn Fields, one of the largest squares in London, we can shut our eyes and be led along till we reach the middle, and try to imagine what it must be to walk for that distance in a low and slanting dark passage, very hot and close, into a most lonesome, oppressive silence, out of the bright glare of day.

## The pyramid set up in the sands by a hundred thousand slaves

The base of the Great Pyramid is almost exactly the same size and shape as Lincoln's Inn Fields. What a scene must have been the building of such a mass, with such a base and such a height, so many centuries ago!

The huge granite facing-stones of the pyramid had to be quarried near the great dam of Assouan and brought down the river for hundreds of miles, and then, with enormous toil, men had to drag, push, and roll them over the burning sands.

The rest of the masses of material were equally difficult to obtain, and let us think of the stupendous work of getting it all into place by means of pulleys and rollers, and the most exact human skill in masonry ever known. It is said that a hundred thousand slaves took part in this huge piece of work.

We may well wonder what was the object of building the Pyramids at such immense cost and labour. As far as we know it was solely for the honour and glory of the king, and to provide a secure resting-place for his body after death. For one of the chief points in the religion of the old Egyptians—that wonderful religion which changed so little during its long history—was to arrange, so far as means would allow, for preserving the

body, as long as possible, whole and entire. This they did by making mummies of the bodies, by soaking them in a strong kind of soda, bandaging them, and putting them in decorated coffins hidden away in great rock tombs, and in the Pyramids, where it was hoped that no one would ever be able to find or disturb them.

#### THE TREASURES OF THE TOMBS THAT TEMPTED THE ROBBERS

Alas, for the last 3000 years at least, robbers have broken into the tombs from time to time, and disturbed what they found; and in our own days we can see, under glass cases in our museums, specimens of the mummies of the great men of Egypt brought once more into the light.

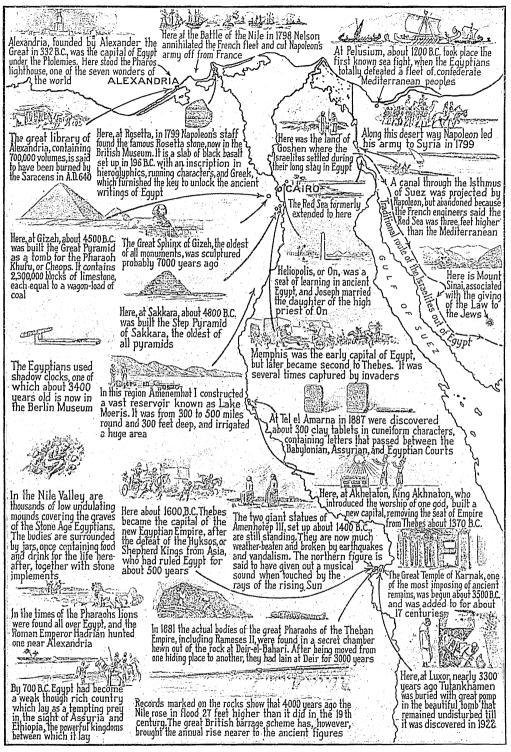
Perhaps we are wondering why the robbers of old were so anxious to break into the tombs, for they could scarcely care for the mummies themselves. It was the treasure that was buried with the mummies that attracted them; for the Egyptians believed that, in some mysterious way, in the new life in which he had gone, the departed person would need the things he had owned in his earthly life. So, with the mummies of royal and rich people, were put their valuable ornaments and their possessions, besides furniture, clothes, and food for the use of the spirit of the departed, and the quaint little figures that were supposed to do the work that would be required in the fields of the land of peace. There is a full description of the wonderful contents of one of these tombs; and of the discovery of the tombs themselves, in Arthur Mee's Golden Year (Hodder & Stoughton).

#### WHAT THE TOMBS TELL US OF LIFE IN THE LONG AGO

It is the sight of these personal belongings that brings us into such close touch with the Egypt of 3000 or 4000 years ago. For we have in the British Museum cases full of such treasures as the dolls with clay beads for hair, and the toys and little worn shoes and sandals of the children; the dressing cabinet of the fine lady, containing ointments for the eyes, elbowcushions, and dainty pink kid slippers. We have, too, the palette and paints of the scribe, the musical instruments of the musician—in short, hundreds of articles of everyday use that bring us face to face with the people to whom they belonged centuries ago.

The attention of the whole world has been drawn in our time to the intense

#### THE OLD, OLD STORY OF EGYPT



THIS PICTURE-MAP SHOWS SOME OF THE CHIEF EVENTS IN THE HISTORY OF EGYPT AND MANY OF THE ANCIENT MONUMENTS WHICH HAVE STOOD FOR THOUSANDS OF YEARS

personal interest of the Egyptian tombs by the discovery of the tomb of King Tutankhamen. He was not one of the earliest or the greatest of the monarchs of antiquity; but the inner parts of his tomb had been undisturbed, and as their exploration was carried on with scientific care the magnificence of Egyptian burials of royal personages was illustrated there with unexampled completeness.

#### THE SPLENDID AND GIGANTIC TEMPLES BUILT BY THE OLD EGYPTIANS

And, besides these interesting personal belongings and thousands of little figures, with nets and field implements painted on them, there were always put beside the mummy representations of the numberless gods to whom the Egyptians prayed, and to whom they erected wonderful temples, whose ruins still form one of the sights of Egypt. There is a great group of these temples on the Nile, where the magnificent city of Thebes once stood, far on the way to Assouan. The great halls, imposing gateways, and rows of pillars form a beautiful sight in brilliant sunshine and deep purple shadow, and, as we gaze at them, we fancy them once more in their first beauty, with long processions of chanting priests and priestesses, and gorgeous display of kingly magnificence when the king came to pay his worship, amidst the stately monuments of gold and silver, adorned with ivory and precious stones. And even yet we have not come to the end of our close touch with the past in Egypt, for we can now read the actual message across the years, written in the old Egyptian picture language, which had died out and been completely forgotten after the Roman power over Egypt gradually died away.

#### THE KEY THAT UNLOCKED THE MYSTERY OF THE ANCIENT PICTURE-WRITING

If we look at the walls and columns of the temples, at the solid vaults, at the coffin-cases, at the sculptures and the wall-paintings, we shall find most of them covered with this picture-writing. Until a century ago no one could guess what it all meant. Then an engraved stone was found at Rosetta, near Alexandria, now carefully preserved under glass at the British Museum, which has served as a sort of key to unlock the mystery. There is a picture of this stone on page 685.

Learned men, who love finding out the puzzles of the past, set to work translating the inscriptions on this stone, and

comparing them with certain lists of names they had already studied, till at last it was all straightened out, and the values of the signs discovered.

This discovery has also opened up to us the old books and chapters of books constantly found in the tombs. These were in long rolls, or papyri, so called from the material on which they are written, the inner part of the papyrus reed growing on the Nile banks. We get our word paper from it.

The work of the scribes was to make copies of these papyri. The one most copied is called the Book of the Dead, parts of which are believed to be older than the pyramids themselves. Certain chapters of this book were always laid beside the mummies, to instruct them what to say and how to behave in the underworld. There is no end to the interest of the Book of the Dead, not only on account of its entrancing illustrations, but also for the teaching it gives about the religion of Egypt, how men tried to fit themselves in life for a happy hereafter; how they expected to be judged, and how they believed they would live and work on their way through the underworld. Besides this and other religious books, there are many other papyri of great age, and they include fairy tales, war poems, medical and astronomical books, and lengthy instructions as to behaviour.

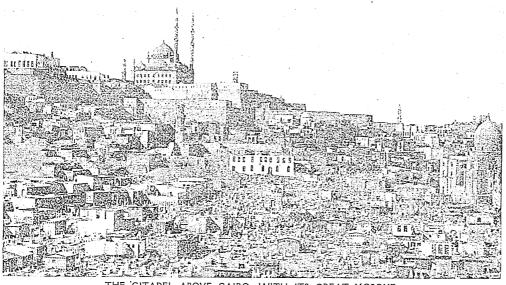
#### L IFE AS IT WAS IN EGYPT MORE THAN SIXTY CENTURIES AGO

Every year diggings and explorations are being carried on in the search for more temples and tombs, inscriptions and papyri, to fill in the gaps in our knowledge of the story of old Egypt.

Scholars are inclined to put back the beginning of that story farther and farther. The first historical king of all Egypt is put by some in the forty-fifth century before Christ. Some think that Menes, who is said to have turned the course of the Nile, lived much earlier. Before him there are legends of god-kings and heroes, and kings of small States. Specimens of very old pottery, with pictures on it of soldiers and boats strangely like children's drawings of today, give an idea of the first known life on the Nile long before Menes.

For the sake of convenience, in dealing with the great number of kings who followed Menes, we generally group them into thirty or more dynasties, or families, and the names are gleaned from the various

#### SCENES IN EGYPT'S CAPITAL



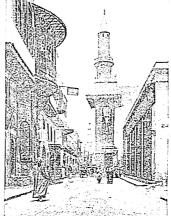
THE CITADEL ABOVE CAIRO, WITH ITS GREAT MOSQUE



BUSY STREET IN THE NATIVE QUARTER



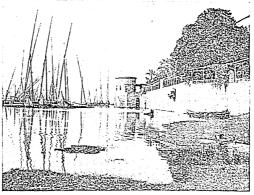
MOSQUES IN THE STREET OF THE WEZIR GATE



THE MOSQUE AND STREET OF EL BENAT



A EUROPEAN STREET IN CAIRO



THE NILOMETER ON THE ISLAND OF RODA NEAR CAIRO

lists of kings on tablets and papyrus, made from time to time through the centuries, which have come down to us. When looking at inscriptions we can always distinguish royal names, because they are surrounded by an oval line, supposed to be a cord tied in a knot to preserve the name from contact with common ones. This oval is called a *cartouche*.

Before the king's name will generally be found some Egyptian words composed of a sign like an umbrella and an insect over two half-circles. These signs mean King of the north and south, for Egypt is such a long, narrow country that it was long divided into two parts, and so we often hear of the double crown, which is made up of the red crown of North Egypt and the white crown of South Egypt, though the ancient Egypt did not extend nearly so far southward as Egypt of the present day.

Each king also called himself Son of Ra, or the Sun, which is shown by a goose and the sun with a dot in the middle.

#### THE KINGS OF THE FOURTH DYNASTY WHO BUILT THE PYRAMIDS

Very little is known of the kings of the first three dynasties. It was under the rule of the fourth that the three great pyramids near Cairo are believed to have been built by Khufu, by Khafra, and by Menkaura.

If we would see the speaking features of Khafra, and note how he sat to give audience to the overseers and officers of his great building works, we can find a cast of his wonderful lifelike portrait in the British Museum. There he sits on his throne, surrounded by memorials of the officials who superintended the building of the second pyramid.

Of Menkaura the museum possesses part of his skeleton and the fragments of his coffin, with the inscription saying he was just and merciful. The rest of the coffin and mummy were lost at sea on the way from Egypt, whence they had been taken from the third pyramid. It is said that the sixty-fourth chapter of the Book of the Dead was compiled in his reign.

Not far from the Pyramids of Gizeh is an enormous monster, hewn out of the living rock, with a human head and the body of an animal, called the Sphinx, so large that it could scarcely be got into the drum below the dome of St Paul's. It is now covered with sand up to the neck,

and only the immense head shows. From time to time through the centuries the sand had been cleared away, and the shape shown, as well as the little temple built in between the great paws.

The face seems to look out to the horizon, changeless through thousands of years, except for the wear of time, and the wanton mischief done to it when Mohammedan soldiers used it as a target. It has a grand majesty of its own.

### THE FAMILY FROM A FAR LAND WHICH CAME IN SEARCH OF FOOD

Many interesting tombs belong to this period, perhaps 2400 years before Christ. One of them has wall-paintings representing the arrival in the country of a family, such as that of Abraham, the great founder of the Jewish race. The story of his visit to Egypt in search of food, when there was a famine in his own country beyond the Isthmus of Suez, is familiar to us in the pages of the Bible. What a change it must have been to the patriarch, for many years used to a wandering tent life and the silence of wide spaces, to enter into the busy life of the Nile valley, with its great cities and huge buildings, and to see the luxury and splendour of the king's court! It must have carried him back to his boyhood, to his native land, where there were also great cities and much wealth, a country, as we read in another part of this book, as old as Egypt itself.

We can well imagine that Abraham would tell stories of this visit to Egypt to his son Isaac, who would tell them to his son Jacob, and Jacob to Joseph. We read the story of Joseph elsewhere; let us follow him again on his sad journey to slavery in Egypt, fitting in all we can to make real the daily life of the handsome lad, so cruelly torn from his home.

#### THE BASKETS IN THE BRITISH MUSEUM WHICH JOSEPH MAY HAVE SEEN

The baskets in the upper Egyptian rooms at the British Museum might well have been those which the chief baker carried on his head; the models of the granaries show how corn was stored, and bring to mind Joseph's great work of fighting the famine that lasted so long, because Father Nile brought too much or too little water to the wide fields.

Fashions changed so little in Egypt for centuries that we can well borrow those seats and other furniture and paintings in the cases around, to put in the palace of the king to whom Joseph became as a

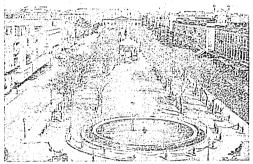
#### TOWNS OF THE LAND OF THE PHARAOHS



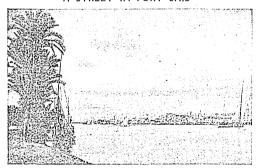
THE PALACE HOTEL, A SPLENDID BUILDING IN HELIOPOLIS



A STREET IN PORT SAID



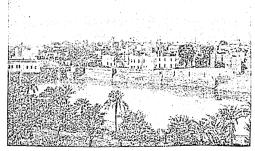
THE PLACE DES CONSULS AT ALEXANDRIA



BULAK, A SUBURB AND PORT OF CAIRO



A STREET IN ISMAILIA



THE TOWN OF ASSIOUT



The pictures on these pages are by the E.N.A., Mr. Donald McLeish, and others

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son, and we may fancy them together discussing earnestly affairs of State—the king on his throne, in a black wig of little curls and plaits, like the one found in a reed box; and Joseph with his reed pens and paints, reading his report from a papyrus roll. Later on comes the touching welcome to the old father and all the family, who had come across the isthmus, with all their worldly possessions, to settle in the land where Joseph had become such a great official.

Little is known of the history of Egypt at this time, for the kings who ruled then destroyed monuments rather than set them up. But when these Shepherd Kings passed away many famous names of builders and soldiers rose up during the years Israel lived in bondage. Among them was Thothmes III, who inscribed and set up the great obelisk we call Cleopatra's Needle, though the famous queen lived several centuries after it was built. This pillar now stands on the Thames Embankment.

Thothmes III was one of the first kings of Egypt to make war across the isthmus, both on the nations in the mountains of Syria and in the valley of the two great rivers beyond the desert.

#### A GREAT QUEEN AND A KING WHO PERSECUTED THE ISRAELITES

Then there was the great Queen Hatshepsut, often called the Elizabeth of Egyptian history. She sent most interesting expeditions to discover unknown countries, and had an account of them, with fine illustrations, engraved on the walls of a magnificent temple she built near Thebes. Rameses II is believed to have been the great oppressor of the Israelites, and we can see his face in the huge stone monuments he set up. More wonderful still is the photograph of his mummy which has been found with those of many of his race, and put into the museum in Cairo. Thus, the features into which so many looked with awe, perhaps the little Moses among them, are shown again to the world more than 3000 years after the great king's death.

Magnificent were the temples and monuments set up by the dynasty of kings, among which we find the massive ruins at Karnak and Luxor, near Thebes. Bricks such as the Israelites made for use in building store cities for their hard taskmasters, necklaces and jewellery such as they may have taken when they "spoiled the Egyp-

son, and we may fancy them together discussing earnestly affairs of State—the king on his throne, in a black wig of little curls and plaits, like the one found in a with which to frame his life from childreed box: and Toseph with his reed pens

#### PICTURES OF LIFE IN EGYPT IN THE DAYS WHEN MOSES MET PHARAOH

The wall-paintings from the tombs show in their bright colours how the Egyptians amused themselves in the time of Moses, and before and after. There are the gay parties with music and dancing; a father getting birds with a sort of boomerang, the child holding on to his leg for fear of falling out of the boat; the mother gathering lotus flowers; the family cat retrieving the birds three at a time. And when the time came for lessons those reed pens and red and black paints were the sort with which the boy must have learned to write. The Ten Commandments, brought down from Sinai by Moses after he had left Egypt, are all shadowed in the forty-two commandments of the Book of the Dead.

The making and worship of the Golden Calf, which so angered the great leader, was suggested by the ancient worship of Egypt, brought home to us in endless forms by paintings and images of every description, as well as by the mummied forms of the animals held in such sacred reverence. For about a thousand years after this brilliant line of the Rameses dynasty, the history of Egypt, on the whole, was one of gradual decline and gathering trouble. It was during this time that the priests of the splendid temples became richer and richer and even more powerful, till at last they made themselves kings. When examining the mummies and their cases, we notice how many belong to priests and priestesses, doorkeepers, incense-bearers, and other officers of the great religious colleges.

## THE SUFFERING OF EGYPT AT THE HANDS OF THE ASSYRIANS AND PERSIANS

Dynasties of foreigners followed the priest-kings, and the country was breaking up and everything going down, when the kings of Assyria saw their chance, and began to attack Egypt on her own frontier. They overran the whole of the country, spoiling the harvests, so that the people starved, and the fine temples and monuments began to fall into decay. Egypt revived for a little while, only to be again devastated from end to end by the Assyrians, till Assyria too, fell under the great power of the Persians.

#### EGYPT AND ITS 100 CENTURIES

The Egyptians took every opportunity to revolt against the Persians. Between the second and third revolts, in the fifth century before Christ, a traveller came to Egypt, notebook in hand, for he was an author, anxious to collect material for his History of the Persian Wars. This

The Persians, in their turn, were driven out by Alexander the Great, of Greece. His stay was but short in Egypt; but his passage has left marks for all time. He flashed across the desert to worship at the shrine of the god Jupiter Ammon, whom he claimed as an ancestor, and he planned





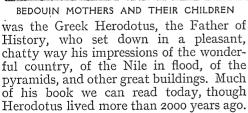


A WOMAN OF KARNAK

A NATIVE DONKEY BOY

TWO EGYPTIAN GIRLS







AN ARAB WOMAN AND HER CHILD TAKE A RIDE and founded the great city of Alexandria, called after him, which, under his successors, became one of the most important cities in the world.

Three centuries before Alexander an Egyptian king had employed Greek soldiers and allowed Greek traders to settle in the delta. Before this Egypt had been closed to foreigners, much as China was till lately; but these Greeks found their way into the country, and, little by little, their cleverness in trade, their wonderful power in art and in learning, spread Greek influence ever farther along the Nile. Naukratis became a famous Greek city during this time, and today explorers find much Greek treasure of all kinds buried in various parts of the Nile delta.

### THE GREEK SOLDIER WHO FOUNDED THE DYNASTY OF THE PTOLEMIES

The kings succeeding Alexander were the Ptolemies, the first of the name being one of Alexander's generals. They were great builders and restorers, and to them we owe the Temple of Edfu, and the temples on the Island of Philae, near the great dam of Assouan. The Ptolemies also favoured the city named Alexandria, after the founder of their fortunes, and started in it the immense library, afterwards unhappily burned, also the university, to which were attracted some of the most famous Greek scholars.

Another Ptolemy built the tall lighthouse, said to be three times as high as the Monument in London, and, like the Pyramids, one of the wonders of the ancient world. The flare from its top guided the shipping of Alexandria safely into its double harbour for long years, but not a trace of it now remains. The same Ptolemy caused the Old Testament, originally written in the Hebrew language, and understood only by comparatively few people, to be translated at Alexandria into Greek, the beautiful language which was soon to be carried over the known world and become the language of scholars everywhere. Another good work of this same king was to cause an Egyptian scribe named Manetho, who knew Greek well, to write in that language a history of Egypt and its religion, and though his actual records have been lost, other writers have copied from Manetho, and thus his work has been of very great use.

### THE SHADOW WHICH CREPT EASTWARD AND REACHED EGYPT

The Rosetta Stone was set up in the reign of Ptolemy V. We see now how it was that a Greek translation came to be put below Egyptian writing. Both languages were then in use in Egypt. And all the time that Egypt was becoming more and more Greek "a shadow ever lengthening towards the East" was slowly creeping onwards from Rome; it passed over

Greece itself in the middle of the second century before Christ, reaching Egypt about a hundred years later.

The last of the Ptolemies was Cleopatra, whose story is told in one of Shakespeare's great plays. What a perspective of years it is from Menes to Cleopatra, fifty centuries full of work and struggle and every kind of human interest.

Egypt remained under the Eastern or Greek Empire after the great division into East and West. It accepted Christianity with the rest of the Empire, but tacked on it all kinds of ideas and customs connected with its ancient faith. It fell almost at once under the yoke of the Mohammedans when they set out to conquer the world, and throughout the ages that followed little was heard of the Egyptian people themselves. They were the bearers of the yoke of alien masters, such as the Circassian Marmelukes, who held power, mostly under Turkey, until the time of Mohammed Ali, who established the reigning dynasty.

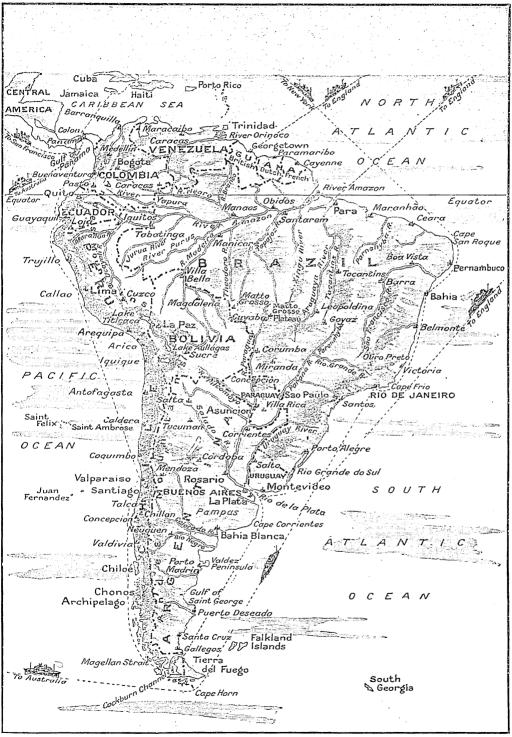
Probably the most peaceful and prosperous period in all its long story has been the generation in which Egypt was under the influences of British thought and methods, though toward the close of this period there was much unrest among the younger people who did not know what oppressions had been removed by their friendly guardians from the West.

## THE RISE OF THE SPIRIT OF INDEPENDENCE IN THE EGYPT OF OUR TIME

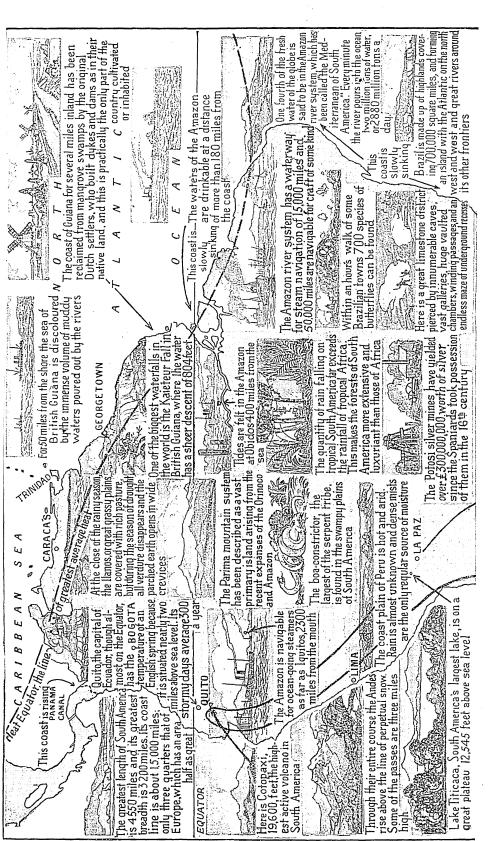
It was in 1922 that it was felt that Egypt had reached a stage at which it might resume self-government, due care being taken to preserve the Suez Canal as an international waterway. Accordingly the Sultan Ahmad Fuad was acknowledged as the Egyptian king, reigning over an independent kingdom with a Parliament of its own.

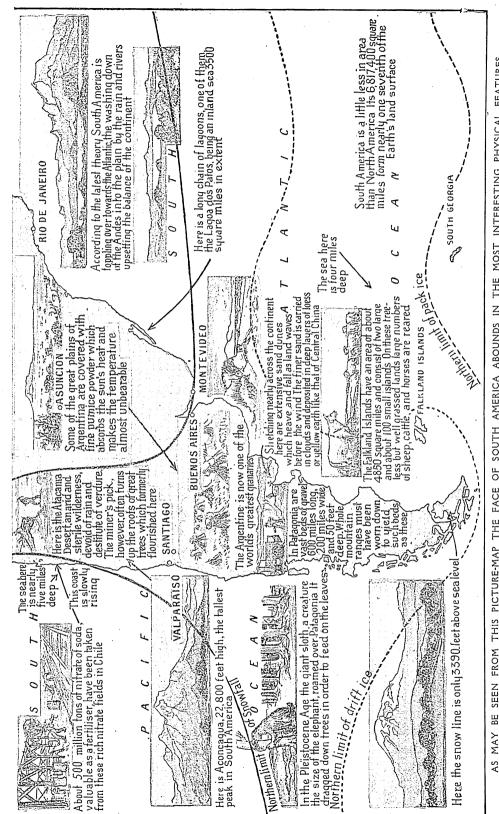
Almost immediately signs of ambition appeared in the country, and movements were apparent which had for their aim the resumption of Egyptian rule in the Sudan, a region that had been rescued from barbarism by a British army, and had prospered greatly under British rule. Peace has been firmly founded among the Sudanese, whereas Egypt has never been able to govern these warlike races, either with benefit to itself or to the natives themselves. Thus the new Egyptian freedom was started with but little promise of statesmanlike wisdom when this book went to press. We shall see.

## GROUP 12 PICTURE ATLAS SECTION 56 MAPS OF CENTRAL & SOUTH AMERICA

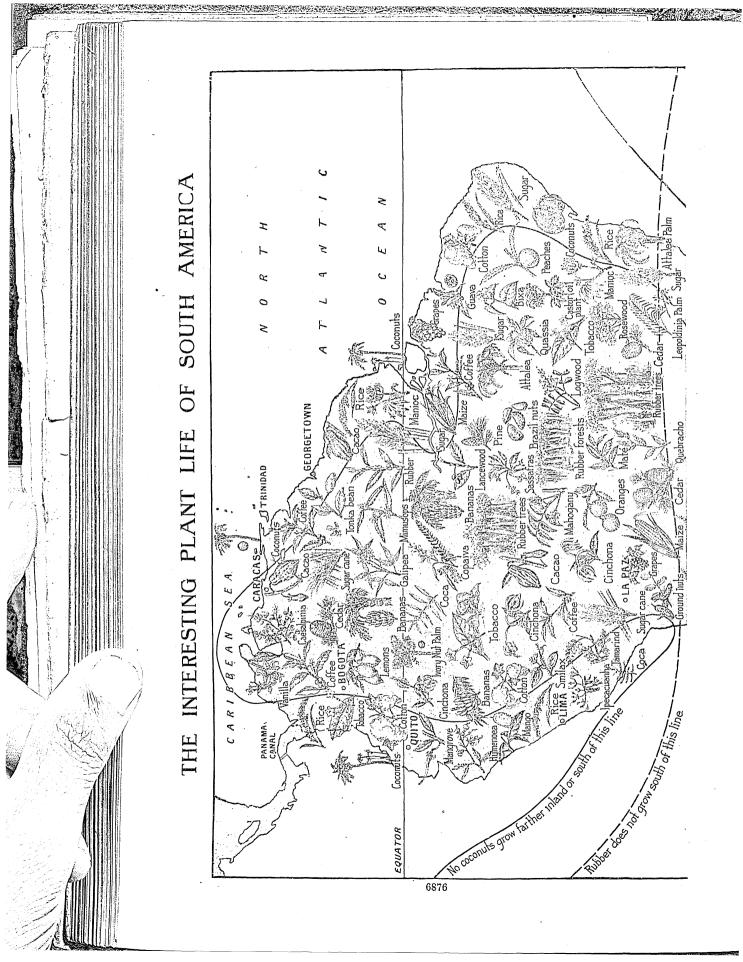


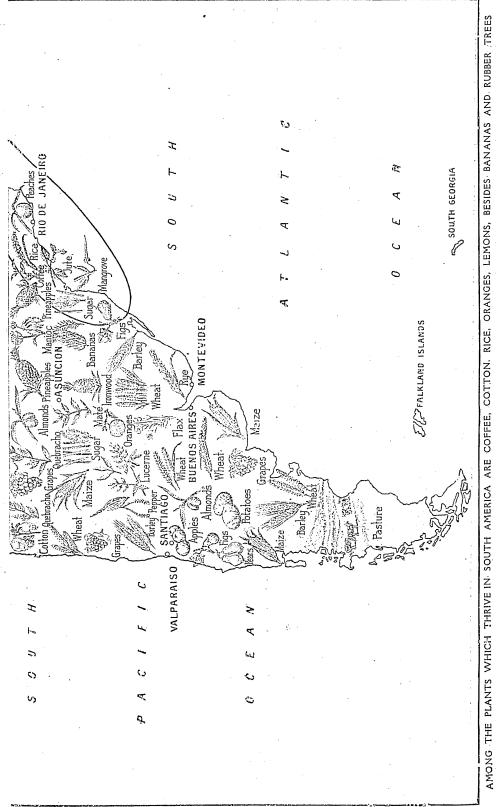
THIS BIRD'S-EYE VIEW OF SOUTH & MERICA SHOWS THE COUNTRIES. CHIEF TOWNS, MOUNTAINS, AND RIVERS

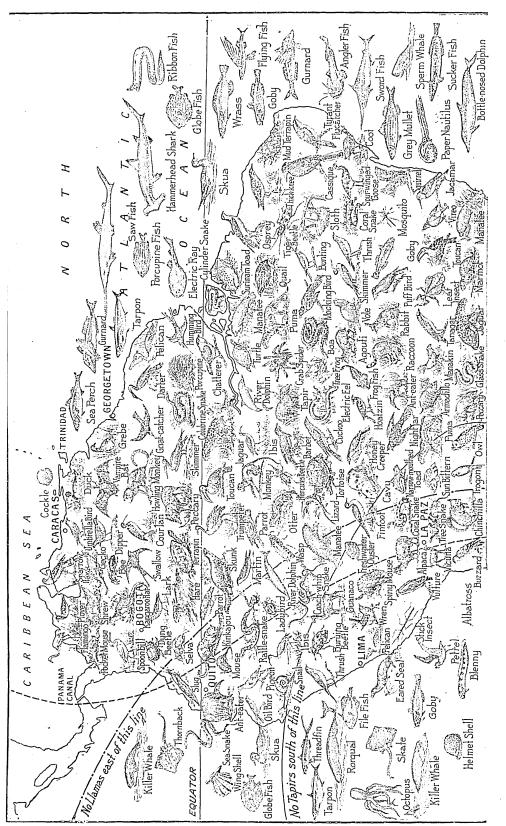


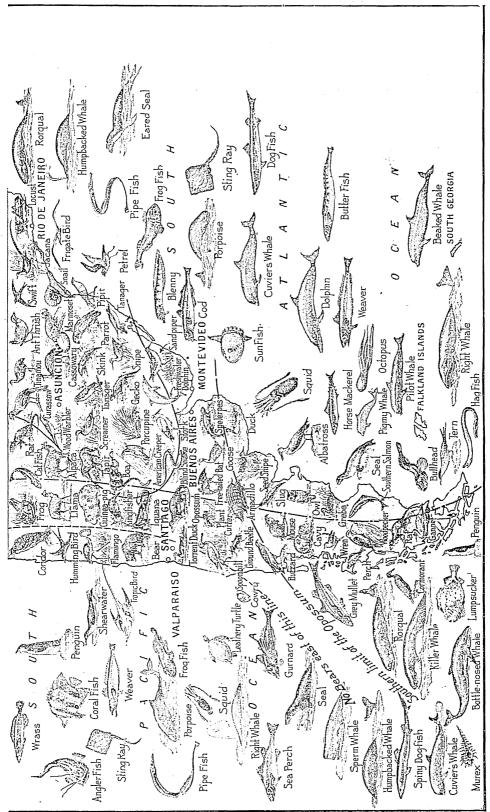


SEEN FROM THIS PICTURE-MAP THE FACE OF SOUTH AMERICA ABOUNDS IN THE MOST INTERESTING PHYSICAL FEATURES BE

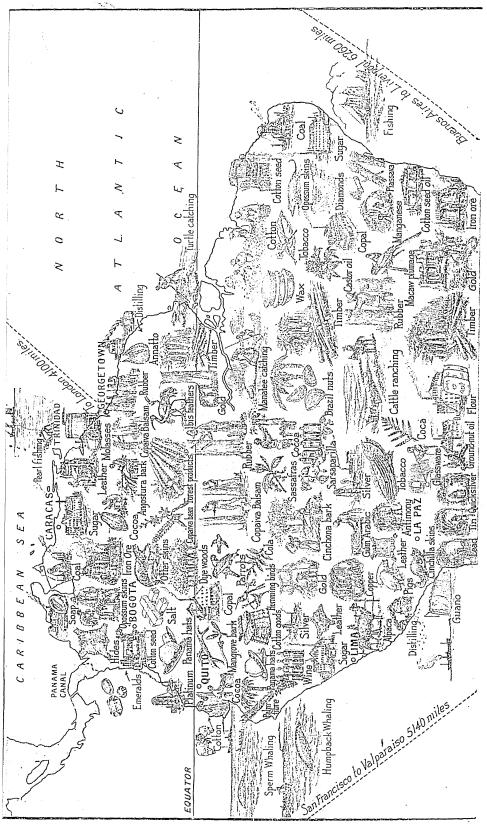


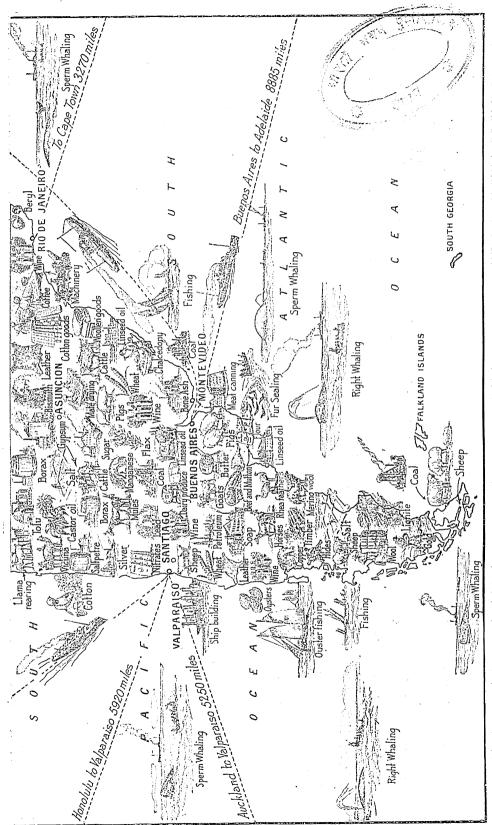




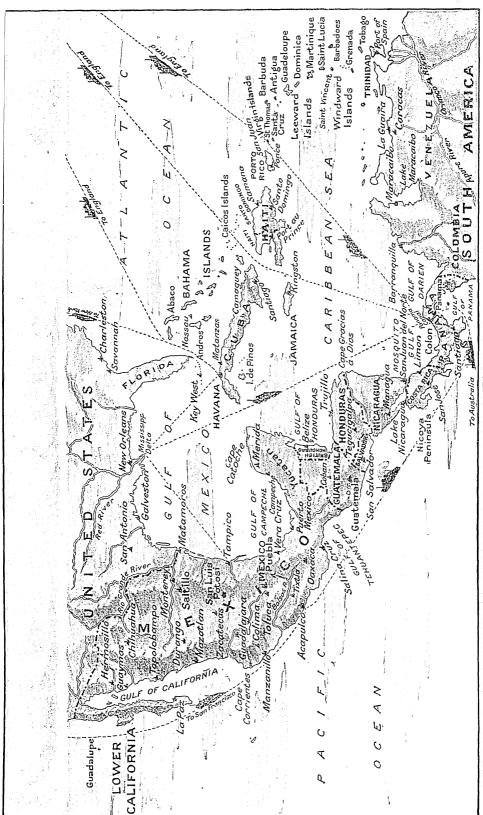


THERE ARE MANY FORMS OF WILD LIFE IN SOUTH AMERICA, RANGING FROM THE CHINCHILLA TO THE ARMADILLO AND FROM THE IGUANA TO THE BOA





AS MAY BE SEEN FROM THIS PICTURE-MAP THE INDUSTRIES OF SOUTH AMERICA VARY FROM SUGAR AND SOAP MANUFACTURE IN THE NORTH TO SHEEP AND CATTLE REARING IN THE SOUTH



A BIRD'S-EYE VIEW OF MEXICO, GUATEMALA, SALVADOR, HONDURAS, NICARAGUA, COSTA RICA, PANAMA, AND THE WEST INDIES, SHOWING THEIR CHIEF TOWNS

# AMERICA PHYSICAL FEATURES AND INDUSTRIES OF MEXICO CENTRAL NEW ORLEANS S ш ALVESTONG" ш Jorullo, a volcano 160 Sperm Whaling THE

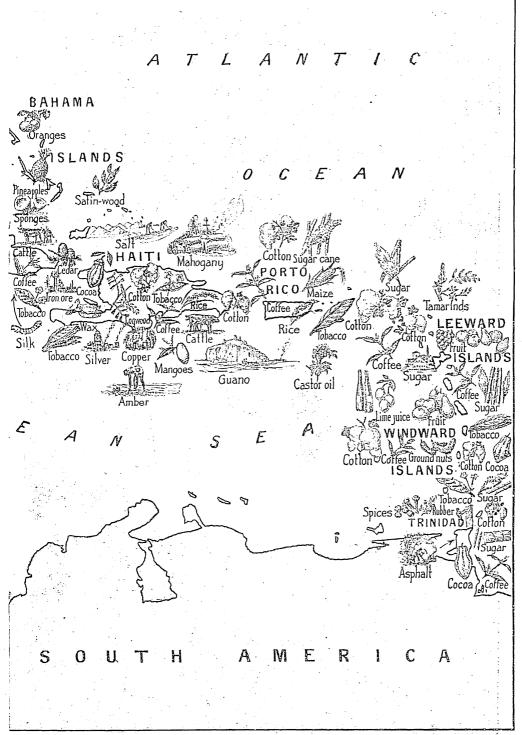
BESIDES MANY INTERESTING PHYSICAL FEATURES THIS PICTURE-MAP SHOWS THE INDUSTRIES WHICH HELP TO BRING PROSPERITY TO MEXICO

#### THE VARIED PLANTS AND INDUSTRIES OF



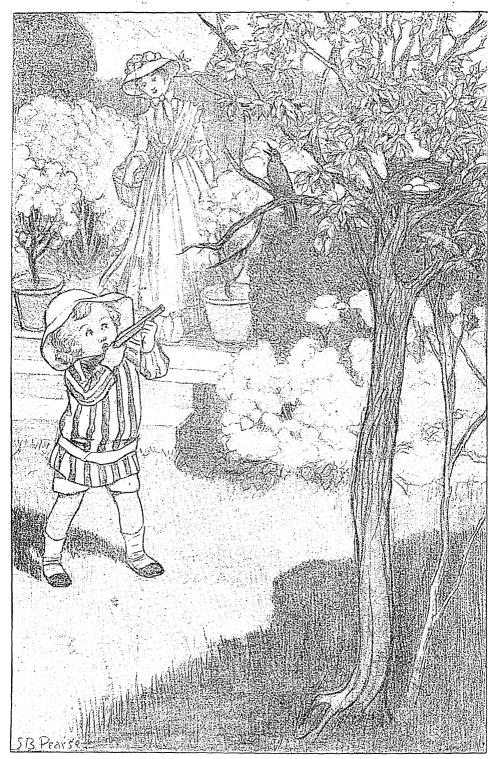
AS MAY BE SEEN FROM THIS PICTURE-MAP MANY OF THE INDUSTRIES OF CENTRAL AMERICA 6884

#### CENTRAL AMERICA AND THE WEST INDIES



AND THE WEST INDIES ARE DEPENDENT ON THE PLANTS WHICH GROW THERE
6885

# A BIRD IN A TREE SANG FIDDLE-DEE-DEE



THE GUN WENT OFF, BUT THE BIRD IN THE TREE CONTINUED TO WHISTLE HIS FIDDLE-DEE-DEE

See poem on page 6902

## One Thousand Poems of All Times and All Countries

The Most Famous Poem of Macaulay

LORD MACAULAY, the brilliant historian, was also famous in his day as a poet, and though his poems are not now in the fashion we ought to be large-minded enough to admire their vigour and fire. He lived in his mind in days historical. Old happenings were real to him. Even the legendary days of old Rome, before regular history was written, were as alive to him as the days he lived in. We see it in this poetical account of a famous incident in traditional Roman times, soon after the Republic was formed. It does not matter a bit to us who were the people he introduces into the poem. The scene is stirring and romantic, and the story is finely told. The poet has the power of making mere names of men and places sound heroic and noble, and the spirit of patriotism shown throughout, and especially towards the close of the Lay, is thrilling. The poem is not quite complete here.

### HOW HORATIUS KEPT THE BRIDGE

L ARS PORSENA of Clusium
By the Nine Gods he swore
That the great house of Tarquin
Should suffer wrong no more.
By the Nine Gods he swore it,
And named a trysting day,
And bade his messengers ride forth,
East and west and south and north,
To summon his array.

AND now hath every city
Sent up her tale of men;
The foot are fourscore thousand,
The horse are thousands ten:
Before the gates of Sutrium
Is met the great array.
A proud man was Lars Porsena
Upon the trysting day.

But by the yellow Tiber
Was tumult and affright:
From all the spacious champaign
To Rome men took their flight.
A mile around the city,
The throng stopped up the ways;
A fearful sight it was to see
Through two long nights and days.

To eastward and to westward
Have spread the Tuscan bands;
Nor house, nor fence, nor dovecote
In Crustumerium stands.
Verbenna down to Ostia
Hath wasted all the plain;
Astur hath stormed Janiculum,
And the stout guards are slain.

I wis, in all the Senate,

There was no heart so bold
But sore it ached and fast it beat
When that ill news was told.

Forthwith up rose the Consul, Up rose the Fathers all; In haste they girded up their gowns, And hied them to the wall.

They held a council standing
Before the River Gate;
Short time was there, ye well may guess,
For musing or debate.
Out spake the Consul roundly:
"The bridge must straight go down;
For, since Janiculum is lost,
Nought else can save the town."

Just then a scout came flying,
All wild with haste and fear:
"To arms! to arms! Sir Consul;
Lars Porsena is here."
On the low hills to westward
The Consul fixed his eye,
And saw the swarthy storm of dust
Rise fast along the sky.

And nearer fast and nearer
Doth the red whirlwind come;
And louder still and still more loud,
From underneath that rolling cloud,
Is heard the trumpet's war-note proud,
The trampling, and the hum.
And plainly and more plainly
Now through the gloom appears,
Far to left and far to right,
In broken gleams of dark-blue light,
The long array of helmets bright,
The long array of spears.

And plainly and more plainly,
Above that glimmering line,
Now might ye see the banners
Of twelve fair cities shine;
But the banner of proud Clusium
Was highest of them all,
The terror of the Umbrian,
The terror of the Gaul.

And plainly and more plainly
Now might the burghers know,
By port and vest, by horse and crest,
Each warlike Lucumo.
There Clinius of Arretium
On his fleet roan was seen;
And Astur of the fourfold shield,
Girt with the brand none else may wield,
Tolumnius with the belt of gold,
And dark Verbenna from the hold
By reedy Thrasymene.
Fast by the royal standard,
O'erlooking all the war,

Fast by the royal standard,
O'erlooking all the war,
Lars Porsena of Clusium
Sat in his ivory car.
By the right wheel rode Mamilius,
Prince of the Latian name;
And by the left false Sextus,
That wrought the deed of shame.

But when the face of Sextus
Was seen among the foes,
A yell that rent the firmament
From all the town arose.
On the house-tops was no woman
But spat towards him and hissed;
No child but screamed out curses,
And shook its little fist.

But the Consul's brow was sad,
And the Consul's speech was low,
And darkly looked he at the wall,
And darkly at the foe.
"Their van will be upon us
Before the bridge goes down;
And if they once may win the bridge
What hope to save the town?"

Then out spake brave Horatius,
The Captain of the Gate:
"To every man upon this earth
Death cometh soon or late;
And how can man die better
Than facing fearful odds
For the ashes of his fathers
And the temples of his gods?

"Hew down the bridge, Sir Consul, With all the speed ye may; I, with two more to help me, Will hold the foe in play. In yon strait path a thousand May well be stopped by three. Now, who will stand on either hand, And keep the bridge with me?"

Then out spake Spurius Lartius,
A Ramnian proud was he:
"Lo, I will stand at thy right hand,
And keep the bridge with thee."
And out spake strong Herminius,

Of Titian blood was he:
"I will abide on thy left side,
And keep the bridge with thee."

"Horatius," quoth the Consul,
"As thou sayest, so let it be."
And straight against that great array
Forth went the dauntless Three.
For Romans in Rome's quarrel
Spared neither land nor gold,
Nor son nor wife, nor limb nor life,
In the brave days of old.

Then none was for a party,
Then all were for the State;
Then the great man helped the poor,
And the poor man loved the great;
Then lands were fairly portioned;
Then spoils were fairly sold;
The Romans were like brothers
In the brave days of old.

Now Roman is to Roman
More hateful than a foe,
And the Tribunes beard the high,
And the Fathers grind the low.
As we wax hot in faction,
In battle we wax cold;
Wherefore men fight not as they fought
In the brave days of old.

Now while the Three were tightening
Their harness on their backs,
The Consul was the foremost man
To take in hand an axe;
And Fathers mixed with Commons
Seized hatchet, bar, and crow,
And smote upon the planks above,
And loosed the props below.

Meanwhile the Tuscan army,
Right glorious to behold,
Came flashing back the noonday light,
Rank behind rank, like surges bright
Of a broad sea of gold.
Four hundred trumpets sounded
A peal of warlike glee,
As that great host, with measured tread,
And spears advanced, and ensigns spread,
Rolled slowly towards the bridge's head,
Where stood the dauntless Three.

The Three stood calm and silent,
And looked upon the foes,
And a great shout of laughter
From all the vanguard rose;
And forth three chiefs came spurring
Before that deep array;
To earth they sprang, their swords they
drew,
And lifted high their shields and flew
To win the narrow way:

#### **POETRY**

Aunus from green Tifernum,
Lord of the Hill of Vines;
And Seius, whose eight hundred slaves
Sicken in Ilva's mines;
And Picus, long to Clusium
Vassal in peace and war,
Who led to fight his Umbrian powers
From that grey crag where, girt with towers,
The fortress of Nequinum lowers
O'er the pale waves of Nar.

Stout Lartius hurled down Aunus
Into the stream beneath;
Herminius struck at Seius,
And clove him to the teeth;
At Picus brave Horatius
Darted one fiery thrust;
And the proud Umbrian's gilded arms
Clashed in the bloody dust.

Then Ocnus of Falerii
Rushed on the Roman Three;
And Lausulus of Urgo,
The rover of the sea;
And Arnus of Volsinium,
Who slew the great wild boar,
The great wild boar that had his den
Amidst the reeds of Cosa's fen,
And wasted fields and slaughtered men
Along Albinia's shore.

Herminius smote down Arnus;
Lartius laid Ocnus low;
Right to the heart of Lausulus
Horatius sent a blow.
"Lie there," he cried, "fell pirate!
No more, aghast and pale,
From Ostia's walls the crowd shall mark
The track of thy destroying bark.
No more Campania's hinds shall fly
To woods and caverns when they spy
Thy thrice accursed sail."

And now no sound of laughter
Was heard among the foes.
A wild and wrathful clamour
From all the vanguard rose.
Six spears' lengths from the entrance
Halted that deep array,
And for a space no man came forth
To win the narrow way.

But hark! the cry is Astur:
And lo! the ranks divide;
And the great Lord of Luna
Comes with his stately stride.
Upon his ample shoulders
Clangs loud the fourfold shield,
And in his hand he shakes the brand
Which none but he can wield.

He smiled on those bold Romans A smile serene and high;

He eyed the flinching Tuscans, And scorn was in his eye. Quoth he, "The she-wolf's litter Stand savagely at bay; But will ye dare to follow If Astur clears the way?"

Then, whirling up his broadsword
With both hands to the height,
He rushed against Horatius,
And smote with all his might.
With shield and blade Horatius
Right deftly turned the blow.
The blow, though turned, came yet too nigh;
It missed his helm, but gashed his thigh;
The Tuscans raised a joyful cry
To see the red blood flow.

He reeled, and on Herminius
He leaned one breathing-space;
Then, like a wild cat mad with wounds,
Sprang right at Astur's face;
Through teeth, and skull, and helmet
So fierce a thrust he sped,
The good sword stood a hand-breadth out
Behind the Tuscan's head.

On Astur's throat Horatius
Right firmly pressed his heel,
And thrice and four times tugged amain
Ere he wrenched out the steel.
"And see," he cried, "the welcome,
Fair guests, that waits you here!
What noble Lucumo comes next
To taste our Roman cheer?"

But meanwhile axe and lever
Have manfully been plied;
And now the bridge hangs tottering
Above the boiling tide.
"Come back, come back, Horatius!"
Loud cried the Fathers all.
"Back, Lartius! Back, Herminius!
Back, ere the ruin fall!"

Back darted Spurius Lartius;
Herminius darted back;
And, as they passed, beneath their feet
They felt the timbers crack.
But when they turned their faces,
And on the farther shore
Saw brave Horatius stand alone,
They would have crossed once more

But with a crash like thunder
Fell every loosened beam,
And, like a dam, the mighty wreck
Lay right athwart the stream.
And a long shout of triumph
Rose from the walls of Rome,

As to the highest turret-tops Was splashed the yellow foam.

And, like a horse unbroken
When first he feels the rein,
The furious river struggled hard,
And tossed his tawny mane,
And burst the curb, and bounded,
Rejoicing to be free,
And whirling down, in fierce career,
Battlement, and plank, and pier,
Rushed headlong to the sea.

Alone stood brave Horatius,
But constant still in mind;
Thrice thirty thousand foes before,
And the broad flood behind.
"Down with him!" cried false Sextus,
With a smile on his pale face.
"Now yield thee," cried Lars Porsena,
"Now yield thee to our grace."

Round turned he, as not deigning
Those craven ranks to see;
Nought spake he to Lars Porsena,
To Sextus nought spake he;
But he saw on Palatinus
The white porch of his home;
And he spake to the noble river
That rolls by the towers of Rome.

"Oh, Tiber! Father Tiber!
To whom the Romans pray,
A Roman's life, a Roman's arms,
Take thou in charge this day!"
So he spake, and speaking sheathed
The good sword by his side,
And with the harness on his back
Plunged headlong in the tide.

No sound of joy or sorrow
Was heard from either bank;
But friends and foes in dumb surprise,
With parted lips and straining eyes,
Stood gazing where he sank;
And when above the surges
They saw his crest appear,
All Rome sent forth a rapturous cry,
And even the ranks of Tuscany
Could scarce forbear to cheer.

But fiercely ran the current,
Swollen high by months of rain;
And fast his blood was flowing;
And he was sore in pain;
And heavy with his armour,
And spent with changing blows;
And oft they thought him sinking,
But still again he rose.

Never, I ween, did swimmer, In such an evil case, Struggle through such a raging flood Safe to the landing-place;
But his limbs were borne up bravely
By the brave heart within,
And our good Father Tiber
Bore bravely up his chin.

"Curse on him!" quoth false Sextus;
"Will not the villain drown?
But for this stay ere close of day
We should have sacked the town!"
"Heaven help him!" quoth Lars Porsena,
"And bring him safe to shore;
For such a gailant feat of arms
Was never seen before."

And now he feels the bottom,
Now on dry earth he stands;
Now round him throng the Fathers
To press his gory hands;
And now, with shouts and clapping,
And noise of weeping loud,
He enters through the River Gate,
Borne by the joyous crowd.

They gave him of the corn-land,
That was of public right,
As much as two strong oxen
Could plough from morn till night:
And they made a molten image,
And set it up on high,
And there it stands unto this day
To witness if I lie.

It stands in the Comitium,
Plain for all folk to see;
Horatius in his harness,
Halting upon one knee:
And underneath is written,
In letters all of gold,
How valiantly he kept the bridge
In the brave days of old.

When the goodman mends his armour,
And trims his helmet's plume;
When the goodwife's shuttle merrily
Goes flashing through the loom;
With weeping and with laughter
Still is the story told,
How well Horatius kept the bridge
In the brave days of old.

#### A DEDICATION

We do not know many things more touching than these four lines. They are Janet Begbie's dedication of a volume of poems to her little sister, who had left this world, and all the desires of it, before the poems were written.

In vain you asked me for a song:
My love was idle all too long.
Now you can never ask again;
I bring you all my songs—in vain.

#### **FAREWELL**

This graceful yet sad farewell to the Sun is from the pen of John Addington Symonds, a poet and able prose writer whose work took a minor tone owing to ill-health.

Thou goest; to what distant place Wilt thou thy sunlight carry? I stay with cold and clouded face; How long am I to tarry? Where'er thou goest morn will be; Thou leavest night and gloom to me.

The night and gloom I can but take; I do not grudge thy splendour. Bid souls of eager men awake;

Be kind and bright and tender. Give day to other worlds; for me It must suffice to dream of thee.

#### THE CHORUS OF THE PITIES

This is taken from the close of Thomas Hardy's great poetic drama The Dynasts, which pictures the last ten years of the life of Napoleon. Spirits are portrayed as watching the scenes of the drama and the terrible deeds and sufferings of men in Napoleon's wars. Why does God allow such sufferings? The Chorus of Spirits representing the feeling of Pity here give the final reply, which is that the Divine Controller of the Universe is fulfilling a great plan we cannot comprehend, but which will bring all men at last into eternal joy, for the good that is in men shows that their Creator cannot be lacking in tender mercy.

To Thee whose eye all Nature owns, Who hurlest Dynasts from their thrones,

And liftest those of low estate We sing, with her men consecrate!

Yea, Great and Good, Thee, Thee we hail, Who shak'st the strong, Who shield'st the frail

Who hadst not shaped such souls as we If tender mercy lacked in Thee!

Though times be when the mortal moan Seems unascending to Thy throne, Though seers do not as yet explain Why Suffering sobs to Thee in vain;

We hold that Thy unscanted scope Affords a food for final Hope, That mild-eyed Prescience ponders nigh Life's loom, to lull it by and by.

Therefore we quire to highest height The Wellwiller, the kindly Might, That balances the Vast for weal, That purges as by wounds to heal.

The systemed suns the skies enscroll Obey Thee in their rhythmic roll, Ride radiantly at Thy command, Are darkened by Thy master hand! And these pale, panting multitudes Seen surging here, their moils, their moods, All shall "fulfill their joy" in Thee, In Thee abide eternally!

Exultant adoration give
The Alone, through Whom all living live,
The Alone, in Whom all dying die,
Whose means the End shall justify!

#### DRAKE'S DRUM

This heart-stirring poem by Sir Henry Newbolt, one of the most soundly famous of our modern patriotic poets, is based on the legendary supposition that if the great sea captain should ever be needed by England, in a time of dire extremity, he will be there to help. We take these verses from Poems New and Old, published by John Murray.

DRANE he's in his hammock an' a thousand mile away,

(Capten, art tha sleepin' there below?),
Slung atween the round shot in Nombre
Dios Bay,

An' dreamin' arl the time o' Plymouth Hoe.

Yarnder lumes the Island, yarnder lie the ships,

Wi' sailor lads a dancin' heel-an'-toe, An' the shore-lights flashin', an' the nighttide dashin',

He sees et arl so plainly as he saw et long ago.

Drake he was a Devon man, an' rüled the Devon seas,

(Capten, art tha sleepin' there below?)
Rovin' tho' his death fell, he went wi'
heart at ease,

An' dreamin' arl the time o' Plymouth Hoe.

"Take my drum to England, hang et by the shore,

Strike et when your powder's runnin' low;

If the Dons sight Devon, I'll quit the port o' Heaven,

An' drum them up the Channel as we drummed them long ago."

Drake he's in his hammock till the great Armadas come,

(Capten, art tha sleepin' there below?),
Slung atween the round shot, listenin' for
the drum,

An' dreamin' arl the time o' Plymouth Hoe.

Call him on the deep sea, call him up the

Call him when ye sail to meet the foe; Where the old trade's plyin' an' the old flag fiyin'

They shall find him ware an' wakin', as they found him long ago!

#### TO MEADOWS

 $i_{\,\rm Ine}$  lovely side of Robert Herrick's country muse, when he delights in flowers and in village customs, is most prettily illustrated in these verses. They tell how the meadows, but lately besprinkled with cowslips, have been despoiled doubtless for the making of old-fashioned cowslip wine. The poet brings before us a charming scene of long ago.

YE have been fresh and green,
Ye have been filled with flowers,
And ye the walks have been
Where maids have spent their hours.

You have beheld how they
With wicker arks did come
To kiss and bear away
The richer cowslips home.

You've heard them sweetly sing, And seen them in a round; Each virgin, like a spring, With honeysuckles crowned.

But now we see none here
Whose silv'ry feet did tread,
And with dishevelled hair
Adorned this smoother mead.

Like unthrifts, having spent Your stock, and needy grown, You're left here to lament Your poor estates, alone.

#### THE COMING OF SPRING

This charming description of the coming of Spring is from White Rose and Red, a story in verse by Robert Buchanan, who made his mark as poet, novelist, and dramatist.

The swift is wheeling and gleaming,
The brook is brown in its bed,
Rain from the cloud is streaming,
And the Bow bends overhead;
The charm of the winter is broken!
The last of the spell is said!

The eel in the pond is quickening, The grayling leaps in the stream; What if the clouds are thickening? See how the meadows gleam! The spell of the winter is shaken; The world awakes from a dream.

The fir puts out green fingers, The pear tree softly blows, The rose in her dark bower lingers, But her curtains will soon unclose, And the lilac will shake her ringlets Over the blush of the rose.

The swift is wheeling and gleaming, The woods are beginning to ring, Rain from the cloud is streaming; There, where the Bow doth cling, Summer is smiling afar off, Over the shoulder of Spring.

#### VENICE

Every intelligent visitor to Venice must be thrilled by this sonnet, with the noble-sounding opening line. It was written in 1802, the year when Wordsworth wrote the greatest of his sonnets. The occasion was the handing over of Venice to Austria by Napoleon, and the suppression of the Venetian Republic. Already Venice had fallen from her high estate as mistress of the trade of the East, and Wordsworth evidently thought of her last change as bringing final ruin. But after his victory at Austerlitz, in 1805, Napoleon brought back Venice from Austria into Italy.

ONCE did she hold the gorgeous east in fee,

And was the safeguard of the west: the worth

Of Venice did not fall below her birth, Venice, the eldest Child of Liberty, She was a maiden city, bright and free; No guile seduced, no force could violate; And, when she took unto herself a mate, She must espouse the everlasting sea. And what if she had seen those glories

Those titles vanish, and that strength decay;

Yet shall some tribute of regret be paid When her long life hath reached its final day:

Men are we, and must grieve when even the shade

Of that which once was great is passed away.

#### HOME, SWEET HOME

This song, expressing the love of home, is first favourite wherever the English language is spoken, but its writer, who was an American, never had a real home. John Howard Payne was an actor, born in 1792. In 1823 he produced in London an opera in which this song was first sung. But afterwards he lived a wandering life, and died in 1852

 $'M^{ID}$  pleasures and palaces though we may roam,

Be it ever so humble, there's no place like home!

A charm from the skies seems to hallow us there,

Which, seek through the world, is ne'er met with elsewhere.

Home, home, sweet, sweet home! There's no place like home!

An exile from home, splendour dazzles in vain!

Oh, give me my lowly thatched cottage again!

The birds singing gaily that came at my call—

Give me them! and the peace of mind dearer than all!

Home, home, sweet, sweet home! There's no place like home!

#### **POETRY**

#### THE EARTH AND MAN

This charming comparison of the life-producing power of the earth with the joy-producing power of the human heart is from Stopford Brooke, whose reputation as a preacher and a literary critic of the nineteenth century somewhat obscured his merits as a poet. He lived from 1832 to 1916.

A LITTLE sun, a little rain,
A soft wind blowing from the west,
And woods and fields are sweet again,
And warmth within the mountain's
breast.

So simple is the earth we tread, So quick with love and life her frame, Ten thousand years have dawned and fled, And still her magic is the same.

A little love, a little trust,
A soft impulse, a sudden dream,
And life as dry as desert dust
Is fresher than a mountain stream.

So simple is the heart of man, So ready for new hope and joy; Ten thousand years since it began Have left it younger than a boy.

#### A CONSECRATION

This powerful poem was the introduction to Salt Sea Ballads, the first book of verse published by John Masefield Not oniy is it remarkable for the intensity of the spirit of humanity which permeates it, but also as a prophecy of the later work of that boldly masculine poet. Mr. Masefield has been true to the ideal he pledged himself to pursue

Not of the princes and prelates with periwigged charioteers

Riding triumphantly laurelled to lap the fat of the years,

Rather the scorned, the rejected, the men hemmed in with the spears;

The men of the tattered battalion which fights till it dies,

Dazed with the dust of the battle, the din and the cries,

The men with the broken heads and the blood running into their eyes.

Not the be-medalled Commander, beloved of the throne,

Riding cock-horse to parade when the bugles are blown,

But the lads who carried the koppie and cannot be known.

Not the ruler for me, but the ranker, the tramp of the road,

The slave with the sack on his shoulders pricked on with the goad,

The man with too weighty a burden, too weary a load.

The sailor, the stoker of steamers, the man with the clout,

The chantyman bent at the halliards putting a tune to the shout,

The drowsy man at the wheel and the tired look-out.

Others may sing of the wine and the wealth and the mirth,

The portly presence of potentates goodly in girth;

Mine be the dirt and the dross, the dust and scum of the earth!

Theirs be the music, the colour, the glory, the gold;

Mine be a handful of ashes, a mouthful of mould.

Of the maimed, of the halt and the blind in the rain and the cold,

Of these shall my songs be fashioned, my tale be told. Amen.

#### WHEN YOU ARE OLD

W. B. Yeats, the most famous of the living poets of Ireland, is a great master of musical words with mystical meanings that do not readily disclose themselves to the average leader. This is one of the best-known of his shorter poems. We quote it from his volume of collected works.

 $W^{\mathtt{HEN}}$  you are old and grey and full of sleep,

And nodding by the fire, take down this book.

And slowly read and dream of the soft look

Your eyes had once, and of their shadows deep;

How many loved your moments of glad grace.

And loved your beauty with love false or true;

But one man loved the pilgrim soul in you,

And loved the sorrows of your changing face.

And bending down beside the glowing bars Murmur, a little sadly, how love fled, And paced upon the mountains overhead, And hid his face amid a crown of stars.

#### ON A PEOPLE'S POET

The idea that men may love a song till they spoil it is the burden of this clever couplet by Sir William Watson.

But all true songs will live again and yet again.

YES, threadbare seem his songs, to lettered ken.

They were worn threadbare next the hearts of men.



#### TO MY MOTHER'S MEMORY

The standpoint of this poem, by Sir William Watson, is a Pennine summit, looking westward towards the Lakeland mountains and eastward over the Yorkshire dales. It is the lowlier dales that command the poet's eye, for there, he tells us, was born his mother, from whom he inherited his poetic vision. This poem is quoted from Hodder and Stoughton's edition of a hundred poems by Sir William.

This is the summit, wild and lone.
Westward the loftier mountains stand.
Let me look eastward on mine own
Ancestral land.

O sing me songs, O tell me tales, Of yonder valleys at my feet! She was a daughter of those dales, A daughter sweet.

Oft did she speak of homesteads there, And faces that her childhood knew. She speaks no more; and scarce I dare To deem it true,

That somehow she can still behold Sunlight and moonlight, earth and sea, Which were among the gifts untold She gave to me.

#### OUR GOD, WE THANK THEE

This lovely hymn of thankfulness for all the forms of beauty and goodness that surround our lives was written by Adelaide Anne Procter, daughter of the poet who called himself Barry Cornwall. Miss Procter, who died in 1861, wrote verses in the magazines edited by Charles Dickens.

Our God, we thank Thee, who hast made
The earth so bright,
So full of splendour and of joy,
Beauty and light;
So many glorious things are here,
Noble and right!

We thank Thee, too, that Thou hast made
Joy to abound;
So many gentle thoughts and deeds
Circling us round,
That in the darkest spot of earth
Some love is found.

We thank Thee more that all our joy
Is touched with pain;
That shadows fall on brightest hours,
That thorns remain;
So that earth's bliss may be our guide,
And not our chain.

For Thou who knowest, Lord, how soon
Our weak heart clings
Hast given us joys, tender and true,
Yet all with wings,
So that we see, gleaming on high,
Diviner things!

We thank Thee, Lord, that Thou hast kept
The best in store;
We have enough, yet not too much,
To long for more;
A yearning for a deeper peace,
Not known before.

We thank Thee, Lord, that here our souls,
 Though amply blest,
Can never find, although they seek,
 A perfect rest,
Nor ever shall, until they lean
 On Jesu's breast!

#### LEISURE

These lines are perhaps the best example of the natural simple poetry of W. H. Davies, who won attention by his descriptions of his travel experiences as a tramp. That he sees the worlds of outdoor life and of human character with a poet's eye and has a rare intuition for romance is universally felt. He has, too, a fine gift of selective criticism, and his reputation will be constantly growing as we grow up, Mr. Davies's poems are published by Messrs. Jonathan Cape.

WHAT is this life if, full of care,
We have no time to stand and
stare?

No time to stand beneath the boughs And stare as long as sheep or cows.

No time to see, when woods we pass, Where squirrels hide their nuts in grass.

No time to see, in broad daylight, Streams full of stars, like skies at night.

No time to turn at Beauty's glance, And watch her feet, how they can dance.

No time to wait till her mouth can Enrich that smile her eyes began.

A poor life this if, full of care, We have no time to stand and stare.

#### TREES

One of the young poets of great promise whose life was cut short by the war was Joyce Kilmer, who was becoming widely known in America by his love of Nature and the freshness and simplicity of his style. He died when he was only thirty-one years old. Had he written nothing except this poem on a tree he would be long remembered.

A poem lovely as a tree,
A tree whose hungry mouth is prest
Against the earth's sweet, flowing breast;
A tree that looks at God all day,
And lifts her leafy arms to pray;
A tree that may in summer wear
A nest of robins in her hair;
Upon whose bosom snow has lain;
Who intimately lives with rain.
Poems are made by fools like me,
But only God can make a tree.

#### INFANT JOY

William Blake, who always had a good deal of the child in him, here babbles and coos as child to child.

I HAVE no name;
I am but two days old.
What shall I call thee?
"I happy am,
Joy is my name."
Sweet joy befall thee!

Pretty Joy!
Sweet Joy, but two days old.
Sweet Joy I call thee;
Thou dost smile,
I sing the while,
Sweet joy befall thee!

#### STANZAS WRITTEN IN DEJECTION

This poem, written by Shelley near Naples in the winter of 1818, pictures the poet in a moment of deep depression, at a turning point in his life. He was now happily married to his second wife, and was beginning to write the poems that have brought him lasting fame; but he felt how ineffectual his earlier work and life had been, and in these lines his mood finds expression in words of deep pathos.

The sun is warm, the sky is clear,
The waves are dancing fast and
bright,

Blue isles and snowy mountains wear
The purple noon's transparent might,
The breath of the moist earth is light,
Around its unexpanded buds;

Like many a voice of one delight, The winds, the birds, the ocean floods, The City's voice itself, is soft like Solitude's.

I see the Deep's untrampled floor With green and purple seaweeds strown;

I see the waves upon the shore,
Like light dissolved in star-showers,
thrown:

I sit upon the sands alone,
The lightning of the noontide ocean
Is flashing round me, and a tone
Arises from its measured motion,
How sweet! did any heart now share in
my emotion.

Alas! I have nor hope nor health,
Nor peace within nor calm around,
Nor that content surpassing wealth
The sage in meditation found,
And walked with inward glory
crowned,
Nor fame nor power nor love nor

Nor fame, nor power, nor love, nor leisure.

Others I see whom these surround; Smiling they live, and call life pleasure; To me that cup has been dealt in another measure. Yet now despair itself is mild,
Even as the winds and waters are;
I could lie down like a tired child,
And weep away the life of care

Which I have borne and yet must bear

Till death like sleep might steal on me,
And I might feel in the warm air
My cheek grow cold, and hear the sea
Breathe o'er my dying brain its last
monotony.

Some might lament that I were cold, As I, when this sweet day is gone, Which my lost heart, too soon grown old, Insults with this untimely moan; They might lament, for I am one Whom men love not, and yet regret, Unlike this day, which, when the sun Shall on its stainless glory set, Will linger, though enjoyed, like joy in memory yet.

#### GRANT US THY PEACE

Probably in English-speaking lands no evening hymn is sung as often, or as widely, as this. It was written in 1886 by Ganon John Ellerton for the close of a religious festival in Cheshire. The tune the Canon had in mind was St. Agnes, but before he died in 1893, he admitted his preference for the fine Pax Dei (Peace of God) of Dr. Dykes, to which the hymn is now most frequently sung.

Saviour, again to Thy dear name we raise

With one accord our parting hymn of praise;

We stand to bless Thee ere our worship cease:

Then, lowly kneeling, wait Thy word of peace.

Grant us Thy peace upon our homeward way;

With Thee began, with Thee shall end the day;

Guard Thou the lips from sin, the hearts from shame,

That in this house have called upon Thy name.

Grant us Thy peace, Lord, through the coming night,

Turn Thou for us its darkness into light; From harm and danger keep Thy children free.

For dark and light are both alike to Thee.

Grant us Thy peace throughout our earthly life,

Our balm in sorrow, and our stay in strife; Then when Thy voice shall bid our conflict cease,

Call us, O Lord, to Thine eternal peace.

#### THE LAY OF THE LAST MINSTREL

Sir Walter Scott's Lay of the Last Minstrel, his first ambitious poem and one which attracted general attention. pictures an aged minstrel, the last of the wandering bards, arriving at a stately castle and receiving a friendly welcome from its mistress. In return he offers to play a long forgotten melody, and after a halting start bursts into the lay that makes the substance of the poetic romance. So well does he perform that the lady of the castle retains him there for the rest of his life. Here we give the opening and close of the poem—the reception and reward of the aged harper.

'HE way was long, the wind was cold; The Minstrel was infirm and old; His withered cheek and tresses gray Seemed to have known a better day; The harp, his sole remaining joy, Was carried by an orphan boy. The last of all the Bards was he, Who sung of Border chivalry; For, well-a-day! their date was fled, His tuneful brethren all were dead; And he, neglected and oppressed, Wished to be with them, and at rest. No more on prancing palfrey borne, He carolled, light as lark at morn; No longer courted and caressed, High placed in hall, a welcome guest, He poured to lord and lady gay The unpremeditated lay. Old times were changed, old manners gone; A stranger filled the Stuarts' throne; The bigots of the iron time Had called his harmless art a crime. A wandering harper, scorned and poor, He begged his bread from door to door, And tuned, to please a peasant's ear, The harp a king had loved to hear.

He passed where Newark's stately tower Looks out from Yarrow's birchen bower; The Minstrel gazed with wistful eye, No humbler resting-place was nigh. With hesitating step at last The embattled portal arch he passed, Whose ponderous grate and massy bar Had oft rolled back the tide of war, But never closed the iron door Against the desolate and poor. The Duchess marked his weary pace, His timid mien, and reverend face, And bade her page the menials tell That they should tend the old man well; For she had known adversity, Though born in such a high degree; In pride of power, in beauty's bloom, Had wept o'er Monmouth's bloody tomb!

When kindness had his wants supplied, And the old man was gratified, Began to rise his minstrel pride: And he began to talk anon Of good Earl Francis, dead and gone,
And of Earl Walter, rest him, God!
A braver ne'er to battle rode:
And how full many a tale he knew
Of the old warriors of Buccleuch;
And would the noble Duchess deign
To listen to an old man's strain,
Though stiff his hand, his voice though
weak,

He thought even yet the sooth to speak, That, if she loved the harp to hear, He could make music to her ear.

The humble boon was soon obtained: The aged Minstrel audience gained. But, when he reached the room of state, Where she with all her ladies sate, Perchance he wished his boon denied: For, when to tune his harp he tried, His trembling hand had lost the ease Which marks security to please; And scenes long past, of joy and pain, Came wildering o'er his agèd brain; He tried to tune his harp in vain! The pitying Duchess praised its chime, And gave him heart, and gave him time, Till every string's according glee-Was blended into harmony And then, he said, he would full fain He could recall an ancient strain He never thought to sing again. It was not framed for village churls, But for high dames and mighty earls; He had played it to King Charles the Good When he kept court in Holyrood; And much he wished, yet feared, to try The long-forgotten melody. Amid the strings his fingers strayed, And an uncertain warbling made, And oft he shook his hoary head. But when he caught the measure wild The old man raised his face and smiled; And lightened up his faded eye With all a poet's ecstasy. In varying cadence, soft or strong, He swept the sounding chords along; The present scene, the future lot, His toils, his wants, were all forgot; Cold diffidence and age's frost In the full tide of song were lost; Each blank, in faithless memory void, The poet's glowing thought supplied; And, while his harp responsive rung, 'Twas thus the Latest Minstrel sung.

Hushed is the harp—the Minstrel gone. And did he wander forth alone? Alone, in indigence and age, To linger out his pilgrimage?

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No; close beneath proud Newark's tower Arose the Minstrel's lowly bower; A simple hut; but there was seen The little garden hedged with green, The cheerful hearth, and lattice clean.

So passed the winter's day, but still, When summer smiled on sweet Bow hill, And July's eve, with balmy breath, Waved the bluebells on Newark heath; When throstles sung in Harehead shaw, And corn was green on Carterhaugh, And flourished broad, Blackandro's oak, The aged harper's soul awoke! Then would he sing achievements high, And circumstance of chivalry, Till the rapt traveller would stay, Forgetful of the closing day; And noble youths, the strain to hear, Forsook the hunting of the deer; And Yarrow, as he rolled along, Bore burden to the Minstrel's song.

#### TO A MOUSE

In none of his poems is the intense sympathy of Robert Burns with animal life seen more clearly than in these tender verses, written after he had turned up a nest of mice with his plough. The poem comes straight from the heart, and goes straight to every heart that is naturally kind. It was written in 1785, the year before Burns published his first volume of poems. Even then he had a presentiment that his life would remain troubled. The meanings of the Scottish words are: brattle, hurry; pattle, a plough-staff; daimen-icker in a thrave, an ear of corn now and then: lave, rest; snell, biting; cranreuch, hoar-frost; a-gley, aslant.

Wee, sleekit, cow'rin', tim'rous beastie, O what a panic's in thy breastie! Thou need na start awa sae hasty,

Wi' bickering brattle! I wad be laith to rin an' chase thee Wi' murd'ring pattle!

I'm truly sorry man's dominion Has broken Nature's social union, An' justifies that ill opinion

Which makes thee startle At me, thy poor earth-born companion An' fellow-mortal!

I doubt na, whiles, but thou may thieve; What then? poor beastie, thou maun live! A daimen-icker in a thrave

'S a sma' request:
I'll get a blessin' wi' the lave,
And never miss 't!

Thy wee bit housie, too, in ruin!
Its silly wa's the win's are strewin'!
An' naething now to big a new ane,
O' foggage green!
An' bleak December's winds ensuin',

Baith snell an' keen!

Thou saw the fields laid bare and waste,
An' weary winter comin' fast,
An' cozie here, beneath the blast,
Thou thought to dwell,
Till crash! the cruel coulter past
Out-thro' thy cell.

That wee bit heap o' leaves an' stibble Has cost thee mony a weary nibble! Now thou's turned out, for a' thy trouble, But house or hald, To thole the winter's sleety dribble,

To thole the winter's sleety dribble, An' cranreuch cauld!

But, Mousie, thou art no thy lane
In proving foresight may be vain;
The best-laid schemes o' mice an' men
Gang aft a-gley,
An' lea'e us nought but grief an' pain
For promised joy.

Still thou art blest compared wi' me!
The present only toucheth thee:
But oh! I backward cast my e'e
On prospects drear!
An' forward though I canna see,
I guess an' fear!

#### I AM

There are no more pathetic lines than these in the English tongue. They were written by John Clare, a poor peasant who spent much of his life in a workhouse asylum. We hear in them the cry of a forsaken genius who was sufficiently sane to shape his wail into a poignant song

I AM! yet what I am who cares, or knows?
My friends forsake me like a memory lost.

I am the self-consumer of my woes; They rise and vanish, an oblivious host, Shadows of life, whose very soul is lost. And yet I am—I live—though I am tossed

Into the nothingness of scorn and noise, Into the living sea of waking dream, Where there is neither sense of life, nor

But the huge shipwreck of my own esteem And all that's dear. Even those I loved the

Are strange—nay, they are stranger than the rest.

I long for scenes where man has never trod,

For scenes where woman never smiled or wept,

There to abide with my Creator, God, And sleep as I in childhood sweetly slept, Full of high thoughts, unborn. So let me lie,

The grass below; above, the vaulted sky.



Wordsworth was a lover of flowers, yet it took him thirty years to discover the modest celandine. When he did notice it as a herald of spring he gave it long withheld fame in these bright, easy, and enthusiastic verses. They were written in 1802. The book name of the lesser celandine is the ranunculus ficaria, and its popular name the pilewort

Pansies, lilies, kingcups, daisies,
Let them live upon their praises;
Long as there's a sun that sets,
Primroses will have their glory;
Long as there are violets,
They will have a place in story:
There's a flower that shall be mine,
'Tis the little Celandine.

Eyes of some men travel far
For the finding of a star;
Up and down the heavens they go,
Men that keep a mighty rout!
I'm as great as they, I trow,
Since the day I found thee out,
Little flower, I'll make a stir,
Like a sage astronomer.

Modest, yet withal an elf Bold, and lavish of thyself; Since we needs must first have met I have seen thee, high and low, Thirty years or more, and yet 'Twas a face I did not know; Thou hast now, go where I may, Fifty greetings in a day.

Ere a leaf is on a bush, In the time before the thrush Has a thought about her nest, Thou wilt come with half a call, Spreading out thy glossy breast Like a careless prodigal; Telling tales about the sun When we've little warmth, or none.

Poets, vain men in their mood, Travel with the multitude: Never heed them; I aver That they all are wanton wooers; But the thrifty cottager, Who stirs little out of doors, Joys to spy thee near her home; Spring is coming, thou art come!

Comfort have thou of thy merit, Kindly, unassuming spirit!
Careless of thy neighbourhood,
Thou dost show thy pleasant face
On the moor, and in the wood,
In the lane; there's not a place;
Howsoever mean it be,
But 'tis good enough for thee.

Ill befall the yellow flowers, Children of the flaring hours! Buttercups, that will be seen, Whether we will see or no; Others, too, of lofty mien; They have done as worldlings do, Taken praise that should be thine, Little, humble Celandine.

Prophet of delight and mirth, Ill-requited upon earth; Herald of a mighty band, Of a joyous train ensuing, Serving at my heart's command, Tasks that are no tasks renewing, I will sing, as doth behove, Hymns in praise of what I love!

#### A RHYME OF ONE

This little address to his one-year-old son was written by Frederick Locker-Lampson, a poet who lived through most of the nineteenth century—from 1821 to 1895.

You sleep upon your mother's breast, Your race begun,

A welcome, long a wished-for guest, Whose age is One.

A Baby Boy, you wonder why
You cannot run;
You try to talk (how hard you to

You try to talk (how hard you try!)
You're only One.

Ere long you won't be such a dunce; You'll eat your bun, And fly your kite, like folk who once Were only One.

You'll rhyme and woo, and fight and joke, Perhaps you'll pun! Such feats are never done by folk Before they're One.

Some day, too, you may have your joy, And envy none; Yes, you, yourself, may own a boy Who isn't One.

He'll dance, and laugh, and crow; he'll do As you have done. (You crown a happy home, though you Are only One.)

But when he's grown shall you be here To share his fun,
And talk of times when he (the dear!)
Was hardly One?

Dear Child, 'tis your poor lot to be My little son; I'm glad, though I am old, you see; While you are One.

TO A BULLDOG

It is not strange that the terrible burden of the world's loss of millions of glorious dead through war should find expression in literature that melts the heart. Among the tew war poems that sound the depths of unavailing sorrow this address to a buildog by Mr. J. C. Squire stands conspicuous. Captain W. H. Squire (Acting Major), Royal Field Artillery, was killed in 1917. What it meant to one household is reflected, through the dog that missed him, with a pathos that makes reading aloud almost impossible. Mr. Squire, who is equally distinguished as a poet and a literary critic, published the volume containing the poem through Messrs. Hodder & Stoughton, and we warmly commend his poems to the rising generation.

WE shan't see Willy any more, Mamie, He won't be coming any more: He came back once and again and again, But he won't get leave any more.

We looked from the window and there was his cab,

And we ran downstairs like a streak, And he said, "Hullo, you bad dog," and you crouched to the floor, Paralysed to hear him speak.

And then let fly at his face and his chest Till I had to hold you down,

While he took off his cap and his gloves and his coat,

And his bag and his thonged Sam Browne.

We went upstairs to the studio, The three of us, just as of old,

And you lay down and I sat and talked to him

As round the room he strolled.

Here in the room where, years ago Before the old life stopped,

He worked all day with his slippers and his pipe,

He would pick up the threads he'd dropped.

Fondling all the drawings he had left behind,

Glad to find them all still the same, And opening the cupboards to look at his belongings

. . . Every time he came.

But now I know what a dog doesn't know, Though you'll thrust your head on my knee.

And try to draw me from the absentmindedness

That you find so dull in me.

And all your life you will never know What I wouldn't tell you even if I could, That the last time we waved him away Willy went for good.

But sometimes as you lie on the hearthrug Sleeping in the warmth of the stove, Even through your muddled old canine brain Shapes from the past may rove.

You'll scarcely remember, even in a dream, How we brought home a silly little pup, With a big square head and little crooked

That could scarcely bear him up;

But your tail will tap at the memory
Of a man whose friend you were,
Who was always kind, though he called
you a naughty dog
When he found you on his chair;

Who'd make you face a reproving finger And solemnly lecture you

Till your head hung downwards and you looked very sheepish!

And you'll dream of your triumphs too,

Of summer evening chases in the garden When you dodged us all about with a bone:

We were three boys, and you were the cleverest,
But now we're two alone.

When summer comes again,
And the long sunsets fade,
We shall have to go on playing the feeble
game for two
That since the war we've played.

And though you run expectant as you always do

To the uniforms we meet,

You'll never find Willy among all the soldiers
In even the longest street.

Nor in any crowd; yet, strange and bitter thought,

Even now were the old words said,
If I tried the old trick and said "Where's
Willy?"

You would quiver and lift your head,

And your brown eyes would look to ask if I were serious,

And wait for the word to spring, Sleep undisturbed: I shan't say *that* again, You innocent old thing.

I must sit, not speaking, on the sofa, While you lie asleep on the floor; For he's suffered a thing that dogs couldn't dream of,

And he won't be coming here any more.



The war has gone, and a new generation is springing up which cannot remember it, or soon will forget it, but here is an echo of the strained feeling it brought from one who felt its sorrow though she was but a girl. This is how the mental atmosphere of the Great War affected Janet Begbie.

THAT'S come to all the songs, Mother, I used to hear all day?

They woke me when the men went by At dawn to mow the hay;

And singing they came loit'ring home.

Red in the setting sun, Such glad songs, such mad songs, Of poaching, ale, and fun.

Where are the pretty love songs The cobbler used to sing, The jolly tunes Jack used to roar

Above his hammer's ring? Both you and Rose work glum: where are

Your lullabies, and where Her low songs, her slow songs, Of God's sweet, tender care?

The gay songs are gone, child, And new songs have come, Of honour and courage, And banner and drum; But far away the lads are, You cannot hear it ring, The brave song, the grave song,

A mother cannot sing.

#### WOODMAN, SPARE THAT TREE

This long popular sentimental song had an American origin. It springs from an incident witnessed by George P. Morris, the writer of the song. A friend with whom he was riding turned aside to see a tree planted by his grandfather, and by it they found a man sharpening his axe to cut it down. The friend interposed by buying the tree and arranging for its preservation. Morris, on reaching home at once expressed his friend's appeal in the words of the song which attained a world-wide circulation. George P. Morris, who was born in 1802, was an 'American brigadier-general and a writer of many songs He died in New York in 1864.

OODMAN, spare that tree! Touch not a single bough!

In youth it sheltered me, and I'll protect it now.

'Twas my forefather's hand that placed it near his cot;

There, woodman, let it stand; thy axe shall harm it not!

That old familiar tree, whose glory and renown

Are spread o'er land and sea. And wouldst thou hew it down?

Woodman, forbear thy stroke! Cut not its earth-bound ties;

O, spare that aged oak, now towering to In the golden olden glory of the days the skies.

When but an idle boy I sought its grateful shade;

In all their gushing joy here, too, my sisters played.

My mother kissed me here, my father pressed my hand;

Forgive the foolish tear; but let that old oak stand.

My heart-strings round thee cling, close as thy bark, old friend;

Here shall the wild bird sing, and still thy branches bend.

Old tree, the storm still brave! And. woodman, leave the spot;

While I've a hand to save, thy axe shall harm it not.

#### THE DAYS GONE BY

This poem by James Whitcomb Riley is a natural echo from a very happy boyhood. There are some points in it which are not true to English conditions. We cannot imagine a quail being as sweet as the nightingale, for instance. But remembrance of our earliest youth is the last to leave us, and most pitiable are they to whom it is not joyous.

THE days gone by! O the days gone

The apples in the orchard, and the pathway through the rye;

The chirrup of the robin, and the whistle of the quail

As he piped across the meadows sweet as any nightingale;

When the bloom was on the clover, and the blue was in the sky,

And my happy heart brimmed over, in the days gone by.

In the days gone by, when my naked feet were tripped

By the honeysuckle tangles where the water-lilies dipped,

And the ripples of the river lipped the moss along the brink

Where the placid-eyed and lazy-footed cattle came to drink,

And the tilting snipe stood fearless of the truant's wayward cry

And the splashing of the swimmer, in the days gone by.

O the days gone by! O the days gone by! The music of the laughing lip, the lustre of the eye;

The childish faith in fairies, and Aladdin's magic ring,

The simple, soul-reposing, glad belief in everything;

When life was like a story holding neither sob nor sigh,

gone by.

6900

#### LITTLE VERSES FOR VERY LITTLE PEOPLE

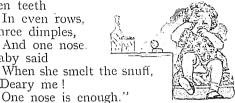
THE DIFFERENCE

E Ten toes, Two eyes, And one nose. Baby said When she smelt the rose. "Oh! what a pity I've only one nose."

Ten teeth In even rows, Three dimples,

And one nose. Baby said

"Deary me! One nose is enough."



Laura E. Richards

#### EYES AND NO EYES

X/HAT, Charles returned! Papa exclaimed.

"How short your walk has been! But Thomas—Julia—where are they? Come, tell me what you've seen.'

"So tedious, stupid, dull a walk!" Said Charles; "I'll go no more; First stopping here, then lagging there, O'er this and that to pore.

" I crossed the fields near Woodland House And just went up the hill; Then by the river-side came down, Near Mr. Fairplay's mill."

Now Tom and Julia both ran in; "Oh, dear Papa!" said they,

"The sweetest walk we both have had! Oh, what a pleasant day!

"Near Woodland House we crossed the fields,

And by the mill we came."

"Indeed!" exclaimed Papa, "how's this? Your brother did the same;

"But very dull he found the walk. What have you there? Let's see! Come, Charles, enjoy this charming treat, As new to you as me."

"First look, Papa, at this small branch." Which on a tall oak grew, And by its slimy berries white The mistletoe we knew.

"A bird all green ran up a tree, A woodpecker we call,

Who, with his strong bill, wounds the bark,

To feed on insects small.

"And many lapwings cried pee-wit; And one among the rest Pretended lameness to decoy Us from her lonely nest.

Young starlings, martins, swallows, all Such lovely flocks so gay; A heron, too, which caught a fish, And with it flew away.

This bird we found, a kingfisher; Though dead, his plumes how bright! Do have him stuffed, my dear Papa, Twill be a charming sight.

"When reached the heath, how wide the space!

The air, how fresh and sweet! We plucked these flowers and different heaths.

The fairest we could meet.

"The distant prospect we admired, The mountains far and blue; A mansion here, a cottage there; See, here's the sketch we drew.

"A splendid sight we next beheld, The glorious setting sun, In clouds of crimson, purple, gold His daily race was done."

"True taste with knowledge," said Papa, "By observation's gained; You've both well used the gift of sight, And thus reward obtained.

" My Julia in this desk will find A drawing-box quite new; This spy-glass, Tom, you oft desired, I think it now your due.

"And pretty toys and pretty gifts For Charles, too, shall be bought When he can see the works of God, And prize them as he ought."

Adelaide O'Keeffe

#### INTO THE WORLD AND OUT

INTO the world he looked with sweet surprise;

The children laughed so when they saw his eyes.

Into the world a rosy hand in doubt He reached—a pale hand took one rosebud out.

"And that was all—quite all!" surely! But. The children cried so when his eyes were shut.

Sarah M. B. Piatt

#### LITTLE VERSES FOR VERY LITTLE PEOPLE

#### THE MONTHS

January brings the snow,
Makes our feet and fingers glow.

February brings the rain, Thaws the frozen lake again.

March brings breezes sharp and chill, Shakes the dancing daffodil.

April brings the primrose sweet, Scatters daisies at our feet.

May brings flocks of pretty lambs, Sporting round their fleecy dams.

June brings tulips, lilies, roses, Fills the children's hands with posies.

Hot July brings thunder-showers, Apricots, and gilly-flowers.

August brings the sheaves of corn; Then the harvest home is borne.

Warm September brings the fruit; Sportsmen then begin to shoot.

Brown October brings the pheasant, Then to gather nuts is pleasant.

Dull November brings the blast—Hark! the leaves are whirling fast.

Cold December brings the sleet, Blazing fire, and Christmas treat. Sara Coleridge

#### FIDDLE-DEE-DEE

THERE once was a bird that lived up in a tree,

And all he could whistle was Fiddle-deedee!—

A very provoking, unmusical song For one to be whistling the summer day

Yet always contented and busy was he With that vocal recurrence of Fiddle-

dee-dee!

Hard by lived a brave little soldier of four. That weird iteration annoyed him so sore: "I prithee, Dear-Mother-Mine, fetch me my gun,

For, by our St. Didy, the deed must be

That shall presently rid all creation and me Of that ominous bird and his Fiddle-deedee!"

Then out came Dear-Mother-Mine, bringing her son

His awfully truculent little red gun;

The stock was of pine and the barrel of tin, The "bang" it came out where the bullet went in:

The right kind of weapon, I think you'll agree.

For slaying all fowl that go Fiddle-dee-dee!

The brave little soldier quoth never a word, But he up and he drew a straight bead on that bird;

And while that vain creature provokingly sang

The gun it went off with a terrible bang!
Then loud laughed the youth, "By my
Bottle," cried he,

"I've put a quietus on Fiddle-dee-dee!"

Out came then Dear-Mother-Mine, saying: "My son,

Right well have you wrought with your little red gun!

Hereafter no evil at all need I fear

With such a brave soldier as You-My-Love here!"

She kissed the dear boy. The bird in the tree

Continued to whistle his Fiddle-dee-dee!

Eugene Field

#### I THINK WHEN I READ

I THINK when I read that sweet story of old,

When Jesus was here among men, How He called little children as lambs to

How He called little children as lambs to His fold,

I should like to have been with Him then.
I wish that His hands had been placed on
my head,

That His arm had been thrown around me.

And that I might have seen His kind look when he said:

"Let the little ones come unto Me."

Yet still to His footstool in prayer I may go, And ask for a share in His love;

And if I thus earnestly seek Him below I shall see Him and hear Him above,

In that beautiful place He has gone to prepare

For all that are washed and forgiven;
And many dear children are gathering
there

"For of such is the kingdom of heaven."

Jemima Thompson Luke

#### NURSERY RHYMES

#### BYE, BABY BUNTING

BYE, Baby Bunting, Daddy's gone a-hunting To get a little rabbit-skin To wrap my Baby Bunting in.

#### JOHNNY'S FROLIC

To! for a frolic! Said Johnny the stout; "There's coasting and sledding: I'm going out!"

Scarcely had Johnny Plunged in the snow When there came a complaint Up from his toe.

"We're cold," said the toe, "I and the rest; There are ten of us freezing, Standing abreast."

Then up spoke an ear: "My! but it's labour Playing in winter. Eh, Opposite neighbour?

"Pooh!" said his nose, Angry and red; Who wants to tingle?

Go home to bed! Eight little fingers, Four to a thumb, All cried together,

" Johnny, we're numb! But Johnny the stout Wouldn't listen a minute;

Never a snow-bank But Johnny was in it.

Tumbling and jumping, Shouting with glee, Wading the snow-drifts Up to his knee,

Soon he forgot them, Fingers and toes, Never once heeded The ear and the nose.

Ah, what a frolic! All in a glow, Johnny grew warmer Out in the snow.

Often his breathing Came with a joke:

Blaze away, Johnny! I'll do the smoke.'

"And I'll do the fire," Said Johnny the bold, Fun is the fuel For driving off cold."

#### AN ALPHABET OF NAMES

A is for Alfred, who Angled at Ayr, B is for Bernard, who Baited a Bear,

C is for Clara, who Came with her Chum, D is for Donald, who Danced on his

is for Eve, who Encountered an Eel, F is for Fanny, who Fashioned a Frill,

G is for George, who has Gone to the

H is for Harold, who Hustled the Hen, I for Irene, who Intends to use Ink,

J is for Joseph, who Jumped a high Jink, K is for Kenneth, who Kept a large Kite,

L is for Lawrence, who Laughed at the Light,

M is for Malcolm, who Marched to the Mine.

N is for Norman, of Newts he caught Nine.

is for Oswald, who an Owl did Observe,

P is for Peggy, with a Pot of Preserve, Q is for Quentin, who Questioned a

Quail. R is for Robert, who Rests on a Rail,

S is for Susan, whose Steed lost a Shoe, T is for Thomas, who Tried to Tattoo,

U is for Ursula, who Upset an Urn, V is for Victor, with Volumes by Verne,

W is William, who Went to the Well,

X is for Xavier, who expects to excel, Y is for Yorick, a Youth who can Yell,

Z is for Zeno, a Zulu with Zeal.

#### THERE WAS A LITTLE MAN

'HERE was a little man Who wooed a little maid;

And he said: "Little maid, will you wed, wed, wed?

I have little more to say, So will you ay or nay?

For the least said is soonest men-ded, ded,

Then the little maid replied:

"Should I be your little bride, Pray what must we have for to eat, eat,

Will the flame that you're so rich in Light a fire in the kitchen?

Or the little God of Love turn the spit, spit, spit?"

THE DOVE AND THE WREN

THE dove says, 'Coo, coo; what shall

I can scarce maintain two.'

Pooh, pooh!' says the wren; 'I have

And keep them all like gentlemen.







#### NURSERY RHYMES

WHAT's the news of the day, Good neighbour, I pray?
They say the balloon
Is gone up to the Moon!

March winds and April showers
Bring forth May flowers.

THERE is a rainbow in the sky,
On the arch where the tempests trod;
God wrote it ere the world was dry:
'Tis the autograph of God.

THE Hart he loves the high wood,
The Hare he loves the hill,
The Knight he loves his bright sword.
The Lady loves her will.

EVERY lady in this land
Has five nails upon each hand,
Twenty on her hands and feet;
All this is true, without deceit.

IF all the world were apple pie,
And all the sea were ink,
And all the trees were bread-and-cheese,
What should we have to drink?

Cood-Morrow to you, Valentine!
Two before and three behind.
Good-morrow to you, Valentine!

For want of the nail the shoe was lost;
For want of the shoe the horse was lost;
For want of the horse the rider was lost;
For want of the rider the battle was lost;
For want of the battle the kingdom was lost:

And all for the want of a horse-shoe nail.

Here's a poor widow from Babylon,
With six poor children all alone;
One can bake and one can brew,
One can shape and one can sew,
One can sit by the fire and spin,
One can bake a cake for a king.
Come choose you East, come choose you
West,

Come choose you the one that you love the best.

LITTLE Boy Blue, come blow up your horn,

The sheep's in the meadow, the cow's in the corn;

But where is the boy that looks after the sheep?

He's under a haycock, fast asleep.

GEORGIE Porgie, Pudding and Pie, Kissed the girls and made them cry. When the boys came out to play Georgie Porgie ran away.

Sing, sing, what shall I sing?

The cat has eaten the pudding-string!

Do, do, what shall I do?

The cat has bitten it quite in two.

QUEEN ANNE, Queen Anne, she sits in the sun,

As fair as the lily, as white as the swan.

THERE was a little boy went into a field,

And lay down on some hay; An owl came out and flew about, And the little boy ran away.

The girl in the lane that couldn't speak plain

Cried gobble, gobble, gobble;
The man on the hill that couldn't stand still

Went hobble, hobble, hobble.

SEA-GULL, sea-gull, sit on the sand; It's never good weather when you're on the land.

BAA, baa, black sheep, have you any wool?

Yes, sir, yes, sir, three bags full; One for the master, and one for the dame, And one for the little boy that cries down the lane.

To market, to market, to buy a fat pig, Home again, home again, Jiggety Jig. To market, to market, to buy a fat hog, Home again, home again, Jiggety Jog.

THERE were two blackbirds sitting on a hill,

The one named Jack, the other named Jill.

Fly away, Jack! Fly away, Jill! Come again, Jack! Come again, Jill!

Four-and-twenty tailors went to kill a snail;

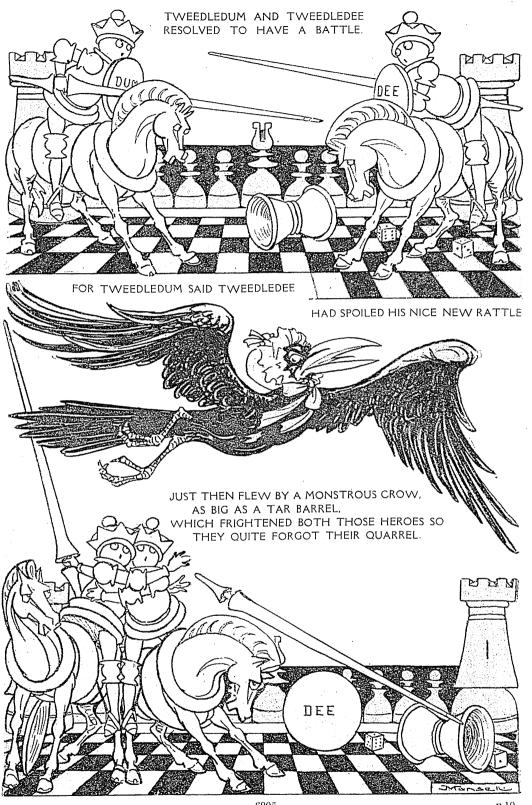
The best man amongst them durst not touch her tail;

She put out her horns like a little Kyloe cow;

Run, tailors, run, or she'll kill you all e'en now!

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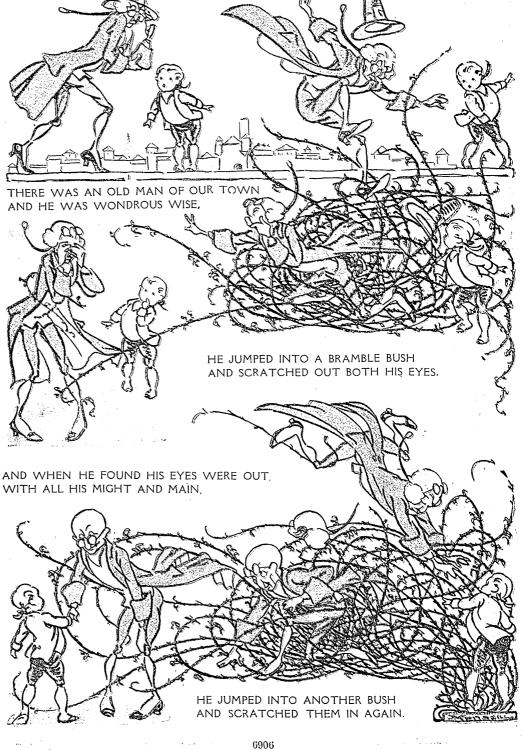




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# WONDROUS WISE HE JUMPED INTO A BRAMBLE BUSH AND SCRATCHED OUT BOTH HIS EYES.



# THE LITTLE CROOKED MAN



# RING OUT THE OLD, RING IN THE NEW RING OUT, WILD BELLS, TO THE WILD SKY, THE FLYING CLOUD, THE FROSTY LIGHT: RING OUT THE OLD. RING IN THE NEW, RING. HAPPY BELLS, ACROSS THE SNOW: THE YEAR IS GOING, LET HIM GO; RING OUT THE FALSE, RING IN THE TRUE. THE YEAR IS DYING IN THE NIGHT; RING OUT, WILD BELLS, AND LET HIM DIE. 6908

#### Imperishable Thoughts of Men Enshrined in the Books of the World

Tennyson's Masterpiece

A<sup>S</sup> printed among Tennyson's works, In Memoriam is a long poem of one hundred and thirty-one sections, with a prologue and an epilogue. It is really a collection of short poems written on different occasions over a period of about sixteen years, dedicated to the memory of a dear friend of the poet, Arthur Henry Hallam, who was expected by all who knew him to become one of the most notable men of England, but who died suddenly at Vienna on September 15, 1833 and was brought back by sea and buried at Clevedon, on the Bristol Channel. Tennyson's grief at the loss of his friend was so intense that for many years it had a constant influence on the poet's life, turning his thoughts to the contemplation of man's destiny, and the effect of grief in purifying the mind of man.

#### IN MEMORIAM

Strong Son of God, immortal Love, Whom we, that have not seen thy face.

By faith, and faith alone, embrace, Believing where we cannot prove:

Thine are these orbs of light and shade;
Thou madest Life in man and brute;
Thou madest Death; and lo, thy foot ls on the skull which thou hast made.

Thou wilt not leave us in the dust:
Thou madest man, he knows not why.
He thinks he was not made to die;
And thou hast made him: thou art just.

Thou seemest human and divine,
The highest, holiest manhood, thou:
Our wills are ours, we know not how;
Our wills are ours, to make them thine.

Our little systems have their day;
They have their day and cease to be:
They are but broken lights of thee,
And thou, O Lord, art more than they.

We have but faith: we cannot know;
For knowledge is of things we see;
And yet we trust it comes from thee,
A beam in darkness: let it grow.

Let knowledge grow from more to more, But more of reverence in us dwell; That mind and soul, according well, May make one music as before,

But vaster. We are fools and slight;
We mock thee when we do not fear:
But help thy foolish ones to bear;
Help thy vain worlds to bear thy light.

Forgive what seemed my sin in me;
What seemed my worth since I began;
For merit lives from man to man,
And not from man, O Lord, to thee.

Forgive my grief for one removed,

Thy creature, whom I found so fair.

I trust he lives in thee, and there
I find him worthier to be loved.

Forgive these wild and wandering cries, Confusions of a wasted youth; Forgive them where they fail in truth, And in thy wisdom make me wise.

#### IN GRIEF'S FIRST HOUR

The poem begins with the above verses, dated 1849, and they strike at once a note of confident hope in the goodness and mercy of God. Overshadowed by the loss of his friend, he asks himself whether they will live again, and continue in another life the friendship of this. He has been studying works of philosophy, but from them he only comes to know that we cannot understand the inner mysteries of life, and must be content with faith. Yet he finds himself wandering sorrowfully in the street where his friend had lived.

Dark house, by which once more I stand Here in the long, unlovely street, Doors, where my heart was used to beat So quickly, waiting for a hand,

A hand that can be clasped no more—Behold me, for I cannot sleep,
And like a guilty thing I creep
At earliest morning to the door.

He is not here; but far away

The noise of life begins again,

And ghastly through the drizzling rain
On the bald street breaks the blank day.

ROMANCE · HISTORIES · DRAMAS · ESSAYS · WORLD CLASSICS

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#### LITERATURE

#### THE LAST JOURNEY

"Every pleasant spot" where the friends had been now seems dark, and despair has driven hope and faith away. The poet's soul has now begun to feel with a new keenness in his grief, but his thoughts are gentle when he contemplates the last journey of his friend over seas to the quet waters of the River Severn in his native land.

Fair ship, that from the Italian shore Sailest the placid ocean-plains With my lost Arthur's loved remains, Spread thy full wings, and waft him o'er.

So draw him home to those that mourn In vain; a favourable speed Ruffle thy mirrored mast, and lead Through prosperous floods his holy urn.

All night no ruder air perplex
Thy sliding keel, till Phosphor, bright
As our pure love, thro' early light
Shall glimmer on the dewy decks.

I hear the noise about thy keel;I hear the bell struck in the night:I see the cabin window bright;I see the sailor at the wheel.

Thou bring'st the sailor to his wife, And travelled men from foreign lands; And letters unto trembling hands; And, thy dark freight, a vanished life.

So bring him: we have idle dreams: This look of quiet flatters thus Our home-bred fancies: O to us, The fools of habit, sweeter seems

To rest beneath the clover sod,
That takes the sunshine and the rains,
Or where the kneeling hamlet drains
The chalice of the grapes of God;

Than if with thee the roaring wells
Should gulf him fathom-deep in brine;
And hands so often clasped in mine
Should toss with tangle and with shells.

#### IF THE LOST CAME BACK

"Is this the end of all my care?" the poet asks himself when the body of his friend has been hidden in the dark grave. In the depth of his grief his reason is not calm enough to answer him, and he can only resign himself to his sorrow and to what time may teach him. In these verses he expresses the commonest feelings of humankind, the difficulty at first of believing that a friend who has died will never meet us and speak to us again in this world.

If one should bring me this report,
That thou hadst touched the land today,
And I went down unto the quay,
And found thee lying in the port;

And standing, muffled round with woe, Should see thy passengers in rank Come stepping lightly down the plank, And beckoning unto those they know;

And if along with these should come
The man I held as half divine;
Should strike a sudden hand in mine,
And ask a thousand things of home;

And I should tell him all my pain,
And how my life had drooped of late,
And he should sorrow o'er my state
And marvel what possessed my brain;

And I perceived no touch of change, No hint of death in all his frame, But found him all in all the same, I should not feel it to be strange.

#### NATURE'S SOOTHING INFLUENCE

"Calm despair and wild unrest" are now the two opposing feelings struggling within him, but when he comes again to the grave of his friend, the very gentleness of the natural scenes has a soothing influence on his spirit, and he writes:

The Danube to the Severn gave
The darkened heart that beat no more;
They laid him by the pleasant shore,
And in the hearing of the wave.

There twice a day the Severn fills;
The salt sea-water passes by,
And hushes half the babbling Wye,
And makes a silence in the hills.

The Wye is hushed nor moved along,
And hushed my deepest grief of all,
When filled with tears that cannot fall,
I brim with sorrow drowning song.

The tide flows down, the wave again
Is vocal in its wooded walls;
My deeper anguish also falls,
And I can speak a little then.

#### MEMORIES OF THE LOST FRIEND

His grief is still a purely personal emotion, and has not yet led him into the wider and deeper feelings which we call "universal," because they embrace mankind as a whole. It is still of their old remembered companionship he sings.

The path by which we twain did go,
Which led by tracts that pleased us well,
Through four sweet years arose and fell,
From flower to flower, from snow to snow:

And we with singing cheered the way, And, crowned with all the season lent, From April on to April went, And glad at heart from May to May:

But where the path we walked began To slant the fifth autumnal slope,

#### TENNYSON'S MASTERPIECE

As we descended following Hope, There sat the Shadow feared of man,

Who broke our fair companionship, And spread his mantle dark and cold, And wrapt thee formless in the fold, And dulled the murmur on thy lip,

And bore thee where I could not see
Nor follow, though I walk in haste,
And think that, somewhere in the waste,
The Shadow sits and waits for me.

#### THE SACRIFICE OF LOVE

But in the presence of this "Shadow cloaked from head to foot," which is, of course, Death, "who keeps the keys of all the creeds," the poet begins to ponder over the great mysteries of man's life and destiny. His thoughts of life, however, are always involved with memories of his friend.

I know that this was Life—the track Whereon with equal feet we fared; And then, as now, the day prepared The daily burden for the back.

But this it was that made me move As light as carrier-birds in air; I loved the weight I had to bear, Because it needed help of Love:

And part it, giving half to him.

Nor could I weary, heart or limb,
When mighty Love would cleave in
twain
The lading of a single pain,

#### THE LESSONS OF LIFE

From his personal feelings he now begins to draw the real lessons of life, and as the wildness of despair gives place at length to more reasonable and calmer thoughts, he is able to contemplate his loss with calmness and resignation.

I envy not in any moods

The captive void of noble rage,

The linnet born within the cage,

That never knew the summer's woods:

I envy not the beast that takes
His license in the field of time,
Unfettered by the sense of crime,
To whom a conscience never wakes;

Nor, what may count itself as blest,
The heart that never plighted troth
But stagnates in the weeds of sloth;
Nor any want-begotten rest.

I hold it true, whate'er befall,
I feel it, when I sorrow most;
'Tis better to have loved and lost
Than never to have loved at all.

#### THE MESSAGE OF THE BELLS

Then, with the approach of Christmastide, and all its holy memories, he finds his very sorrow touched with joy. New feelings of hope, and a serene happiness, born of his rising faith in God's Mercy, now dwell in that breast where so recently the wildness of sorrow and despair had reigned.

The time draws near the birth of Christ:
The moon is hid; the night is still;
The Christmas bells from hill to hill
Answer each other in the mist.

Four voices of four hamlets round,
From far and near, on mead and moor,
Swell out and fail, as if a door
Were shut between me and the sound:

Each voice four changes on the wind, That now dilate, and now decrease, Peace and goodwill, goodwill and peace, Peace and goodwill, to all mankind.

This year I slept and woke with pain, I almost wished no more to wake, And that my hold on life would break Before I heard those bells again;

But they my troubled spirit rule,
For they controlled me when a boy;
They bring me sorrow touched with
joy,
The merry merry bells of Yule.

#### THE POET'S FAITH AND DOUBT

His faith in the promises of God, as revealed to us in the teachings of Jesus, is not yet absolute, and his mind is not without its doubts, but he has emerged from his darkest sorrow with the conviction that the grave is not the end.

My own dim life should teach me this, That life shall live for evermore, Else Earth is darkness at the core, And dust and ashes all that is;

What then were God to such as I?
'Twere hardly worth my while to choose
Of things all mortal, or to use
A little patience ere I die;

'Twere best at once to sink to peace,
Like birds the charming serpent draws,
To drop head-foremost in the jaws
Of vacant darkness and to cease.

#### DO THE DEPARTED THINK OF US?

It is springtime again, and the poet still is singing his mournful songs in memory of his friend. For the first time we find him wondering whether the spirit of the departed takes any interest in the life on Earth, and, if so, he cannot but think these songs of his will be grateful to the spirit's ear.

No joy the blowing season gives, The herald melodies of spring, But in the songs I love to sing A doubtful gleam of solace lives.

#### LITERATURE

If any care for what is here
Survive in spirits rendered free,
Then are these songs I sing of thee
Not all ungrateful to thine ear.

#### THE PURPOSE OF ALL LIFE

From this thought he goes on to speculate upon the life of the departed. "How fares it with the happy dead?" he asks, and suggests that theirs is indeed the larger life, to which all the joys and sorrows and good and evil of this world we live in are but the dim and bungling preparations.

Oh, yet we trust that somehow good Will be the final goal of ill, To pangs of nature, sins of will, Defects of doubt, and taints of blood;

That nothing walks with aimless feet;
That not one life shall be destroyed,
Or cast as rubbish to the void,
When God hath made the pile complete;

That not a worm is cloven in vain;
That not a moth with vain desire
Is shrivelled in a fruitless fire,
Or but subserves another's gain.

Behold, we know not anything;
I can but trust that good shall fall
At last—far off—at last, to all,
And every winter change to spring.

Dost thou look back on what hath been, As some divinely gifted man, Whose life in low estate began And on a simple village green;

Who breaks his birth's invidious bar, And grasps the skirts of happy chance, And breasts the blows of circumstance, And grapples with his evil star;

And moving up from high to higher,
Becomes on Fortune's crowning slope
The pillar of a people's hope,
The centre of a world's desire;

Yet feels, as in a pensive dream,
When all his active powers are still:
A distant dearness in the hill,
A secret sweetness in the stream,

The limit of his narrower fate,
While yet beside its vocal springs
He played at counsellors and kings,
With one that was his earliest mate;

Who ploughs with pain his native lea And reaps the labour of his hands, Or in the furrow musing stands; "Does my old friend remember me?"

#### WHEN GRIEF IS PAST

This, then, is the wide and universal hope that has grown within the soul of the poet, as he has turned from his own personal sorrows to contemplate the sorrows of all mankind, and to look with clearer faith upon the work of God. He has no longer any doubt that God has created man not as the mere creature of a passing day, but as an inheritor of immortal life. He begins also to feel half ashamed of his grief, saying that "The song of woe is, after all, an earthly song," and in the larger love of mankind, which Jesus came to teach, he finds the joy that far outweighs the loss of a friend. Another year has passed; it is Christmas once more.

Again at Christmas did we weave
The holly round the Christmas hearth;
The silent snow possessed the earth,
And calmly fell our Christmas-eve:

The Yule-clog sparkled keen with frost, No wing of wind the region swept, But over all things brooding slept The quiet sense of something lost.

As in the winters left behind,
Again our ancient games had place,
The mimic picture's breathing grace,
And dance and song and hoodman-blind.

Who showed a token of distress?
No single tear, no mark of pain:
O sorrow, then can sorrow wane?
O grief, can grief be changed to less?

O last regret, regret can die!
No—mixt with all this mystic frame,
Her deep relations are the same,
But with long use her tears are dry.

#### THE COMING OF SPRING

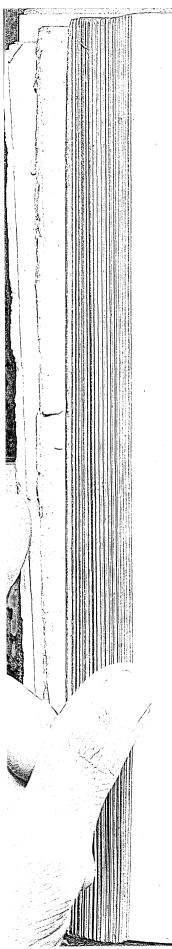
The poet is thus uneasy at the thought that his sorrow for his friend has lessened. It is personal feeling again pushing against the wider love of humanity, and in the following beautiful song of spring he calls upon the warmer season of the year to thaw his frozen sorrow and let it flower again.

Dip down upon the northern shore,
O sweet new year delaying long;
Thou doest expectant Nature wrong;
Delaying long, delay no more.

What stays thee from the clouded noons, Thy sweetness from its proper place? Can trouble live with April days, Or sadness in the summer moons?

Bring orchis, bring the foxglove spire, The little speedwell's darling blue, Deep tulips dashed with fiery dew, Laburnums, dropping-wells of fire.

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#### TENNYSON'S MASTERPIECE

O thou, new year, delaying long, Delayest the sorrow in my blood, That longs to burst a frozen bud And flood a fresher throat with song.

#### WHAT MIGHT HAVE BEEN

His mind is back again entirely with his friend, when he sings thus of what might have been had the lost one lived to marry the poet's sister, to whom he had been engaged

When I contemplate all alone
The life that had been thine below,
And fix my thoughts on all the glow
To which thy crescent would have grown;

I see thee sitting crowned with good, A central warmth diffusing bliss In glance and smile, and clasp and kiss, On all the branches of thy blood;

Thy blood, my friend, and partly mine;
For now the day was drawing on
When thou shouldst link thy life with one
Of mine own house, and boys of thine

Had babbled "Uncle" on my knee; But that remorseless iron hour Made cypress of her orange flower, Despair of Hope, and earth of thee.

I seem to meet their least desire,

To clap their cheeks, to call them mine,
I see their unborn faces shine
Beside the never-lighted fire.

I see myself an honoured guest, Thy partner in the flowery walk Of letters, genial table-talk, Or deep dispute, and graceful jest;

While now thy prosperous labour fills
The lips of men with honest praise,
And sun by sun the happy days
Descend below the golden hills

With promise of a morn as fair;
And all the train of bounteous hours
Conduct by paths of growing powers,
To reverence and the silver hair;

Till slowly worn her earthly robe,
Her lavish mission richly wrought,
Leaving great legacies of thought,
Thy spirit should fail from off the globe;

What time mine own might also flee, As linked with thine in love and fate, And, hovering o'er the dolorous strait To the other shore, involved in thee, Arrive at last the blessed goal,
And He that died in Holy Land
Would reach us out the shining hand,
And take us as a single soul.

What reed was that on which I leant?
Ah, backward fancy, wherefore wake
The old bitterness again, and break
The low beginnings of content.

#### FAMILIAR SCENES REVISITED

For a time the thoughts of the poet are again entirely with the departed; then comes a visit to Cambridge, where they had been at college together, but the sense of personal loss is no longer felt, the gloom has lifted from the poet's mind.

I passed beside the reverend walls
In which of old I wore the gown;
I roved at random through the town,
And saw the tumult of the halls;

And heard once more in college fanes
The storm their high-built organs make,
And thunder-music, rolling, shake
The prophets blazoned on the panes;

And caught once more the distant shout, The measured pulse of racing oars Among the willows; paced the shores And many a bridge, and all about

The same grey flats again, and felt
The same, but not the same; and last
Up that long walk of limes I passed
To see the rooms in which he dwelt.

Another name was on the door:
I lingered; all within was noise
Of songs, and clapping hands, and boys
That crashed the glass and beat the floor;

Where once we held debate, a band Of youthful friends, on mind and art, And labour, and the changing mart, And all the framework of the land;

When one would aim an arrow fair, But send it slackly from the string; And one would pierce an outer ring, And one an inner, here and there;

And last the master-bowman, he, Would cleave the mark. A willing ear We lent him. Who but hung to hear The rapt oration flowing free

From point to point, with power and grace
And music in the bounds of law,
To those conclusions when we saw
The God within him light his face,

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And seem to lift the form, and glow In azure orbits heavenly-wise; And over those ethereal eyes The bar of Michael Angelo.

#### RING OUT WILD BELLS

Through many sections of the poem the writer recalls events in his friendship with his lost companion, but there is always a feeling of joy now in his expressions of grief, no wavering note of doubt when he sings of the greater things of life and immortality; until at last a Christmas comes that finds him calm in mind and strong in faith, and in a great song of triumph the poem reaches its climax.

Ring out, wild bells, to the wild sky,
The flying cloud, the frosty light:
The year is dying in the night;
Ring out, wild bells, and let him die.

Ring out the old, ring in the new,
Ring, happy bells, across the snow:
The year is going, let him go;
Ring out the false, ring in the true.

Ring out the grief that saps the mind, For those that here we see no more; Ring out the feud of rich and poor, Ring in redress to all mankind.

Ring out a slowly dying cause,
And ancient forms of party strife;
Ring in the nobler modes of life,
With sweeter manners, purer laws.

Ring out the want, the care, the sin,
The faithless coldness of the times;
Ring out, ring out my mournful rhymes,
But ring the fuller minstrel in.

Ring out old shapes of foul disease;
Ring out the narrowing lust of gold,
Ring out the thousand wars of old,
Ring in the thousand years of peace.

Ring in the valiant man and free,
The larger heart, the kindlier hand;
Ring out the darkness of the land,
Ring in the Christ that is to be.

#### JOY COMES WITH SPRING

The poet's new mood is reflected, as spring follows the winter cold, in the lovely sights and sounds with which Nature renews the beauty of the Earth.

Now fades the last long streak of snow, Now burgeons every maze of quick About the flowering squares, and thick By ashen roots the violets blow.

Now rings the woodland loud and long, The distance takes a lovelier hue, And drowned in yonder living blue The lark becomes a sightless song. Now dance the lights on lawn and lea, The flocks are whiter down the vale, And milkier every milky sail On winding stream or distant sea;

Where now the seamew pipes, or dives
In yonder greening gleam, and fly
The happy birds, that change their sky
To build and brood; that live their lives

From land to land; and in my breast Spring wakens too; and my regret Becomes an April violet, And buds and blossoms like the rest.

#### WHAT TIME HAS TAUGHT THE POET

So at last the poet's personal grief has passed; "been lived down," as we say. Time has indeed taught him wisdom, and he is wise in the confident hope that far better than unavailing sorrow for the dead is the steady faith in the reunion of friends in after life, "some strong bond which is to be."

Is it, then, regret for buried time
That keenlier in sweet April wakes,
And meets the year, and gives and takes
The colours of the crescent prime?

Not all: the songs, the stirring air,
The life re-orient out of dust,
Cry through the sense to hearten trust
In that which made the world so fair.

Not all regret: the face will shine
Upon me while I muse alone;
And that dear voice I once have known
Still speak to me of me and mine:

Yet less of sorrow lives in me
For days of happy commune dead;
Less yearning for the friendship fled
Than some strong bond which is to be.

#### THAT ONE DIVINE EVENT

The last thoughts of the poet, freed from all contemplation of his own feelings, are with mankind as a whole, and in his vision he sees the ultimate triumph of life over death, of good over evil. Man is no mere animal, but capable of love and suffering and hope, and these are but the seeds of what will flower and bear fruit in the after life of the soul.

Nature, the poet says, is like an open book;

No longer half-akin to brute,
For all we thought and loved and did,
And hoped, and suffered, is but seed
Of what in them is flower and fruit.

Whereof the man, that with me trod This planet, was a noble type Appearing ere the times were ripe, That friend of mine who lives in God,

That God, which ever lives and loves, One God, one law, one element, And one far-off divine event, To which the whole creation moves.

#### The Story of the Most Beautiful Book in the World

The Growth of Christianity

WE have finished our survey of the Bible stories. Their continuation is to be found in the story of Christianity to which the Bible led. The Bible was finished some seventeen centuries ago. The Christianity that grew out of it, and still finds its inspiration in it, goes on, and will go on, with a development like that which can be traced throughout the Bible. Here we shall follow, in outline, the changeful growth of the Christianity that at last will complete the reconciliation of humanity with God which the Bible began. Religion entered upon an entirely new stage when Jesus left to his disciples the spreading throughout the world of his Divine revelation.

#### THE WINNING OF THE WORLD

The rapid spread of Christianity, after the earthly presence of the Master was withdrawn, dwarfs all recorded miracles. Failure could not seem more complete than when Jesus, rejected by the priests of his own race, was denounced by them to the Roman Government of Judea as a dangerous revolutionist, crucified as a criminal, and his few inconspicuous disciples all forsook Him and fled. To human wisdom that seemed the end—the disgraceful end—of the Galilean carpenter who had been felt to be a marvellous teacher by crowds of simple countrymen.

Against any revival of the excitement caused by His powers of healing, His compelling personality, His tender teaching, and His shining purity, were the resentment of the closely-organised Jewish priesthood, the paganism of the non-Jewish elements in the population, and the mighty Government of the Roman Empire which, with a kind of lofty contempt, always supported organised local opinion in its distant provinces. And yet, before the generation to which Jesus had belonged had passed away, the gentle religion of the meek and pure in heart, that saw God as a Heavenly Father and all men as brethren, had spread over western Asia, penetrated to Athens, the home of philosophy in Greece, and was permeating silently the imperial city of Rome itself.

The world, made bankrupt of spirituality by the trivialities and superstitions of outworn paganism, and by harsh, mechani-

cal Judaism, was waiting in expectancy for a Messiah, a deliverer, with a new faith that would satisfy the loftiest hopes of humanity; and, as the story of Him who brought life and immortality to light passed from land to land, the finest souls in every race that heard the good news felt that in very truth a Messiah had come.

The complete destruction of Jerusalem, and the shattering of the priestly system of the Jews by the army of Titus, had some effect no doubt on the most religious race in the world. No longer could it be hoped by Jews that the Chosen People would ever attain to an earthly kingship. The long cherished belief in a conquering Messiah perished. Rome ruled the world. A spiritual sway was the only possibility left. The Master's teaching that the Kingdom of God is within the hearts of men appealed alike to disillusioned Jews and to the many races who bowed the knee, in temporal affairs, to the all-embracing might of Rome. The thoughts of men widened to something like the breadth of the Master's own outlook and reached to the Eternal Beyond. It was the immortal Christ who conquered the imagination of a generation that had well-nigh lost hope.

For a time the disciples held firmly the belief that Jesus would quickly return and visibly inaugurate a new era. Even Paul, the greatest of all the preachers of the Christian faith, held this view; but, as we can see in his letters if we understand when each of them was written, he

began to realise that Christ's kindom was to be in the hearts of men till the whole world had been reached by His Gospel. And this spiritual aspect of Christianity, as bringing men into a right relationship to God through all succeeding ages, was at last accepted by nearly all Christians.

# THE GREAT WAVE OF ENTHUSIASM WHICH WOULD NOT BE STAMPED OUT

No doubt the early mistake of a swift triumphant appearance of Christ had great effects in making the first Christians earnest and faithful; but the most real cause of the marvellous spread of the new faith, for centuries after Jesus finished His earthly life, was a passionate devotion aroused by the truth and loveliness of the revelation He had made to mankind, and a feeling of the difference He had made to the world by the glorious outlook He had disclosed. His spirit thrilled men to a sublime enthusiasm that knew no fear.

And, indeed, there was need for such an enthusiasm, for persecution soon did its worst to stamp out the swiftly spreading faith. The Roman Empire, which dominated the world as far as India by force of arms, demanded that its august Emperors should be acknowledged as divine, according to the old pagan ideas, and, of course, Christians could not make any such acknowledgment. They were willing to render to Caesar the things which were Caesar's, but not to render to him the adoration that was God's. So from time to time the Emperor tried to abolish Christianity altogether by making life intolerable for any man who was a declared follower of Christ.

# HOW CHRISTIANITY GREW UP ROUND TWO GREAT CENTRES IN EUROPE

If a Roman nobleman was a Christian he was degraded from his rank, and not allowed to hold any honourable office. If he was one of the people he was deprived of citizenship, and insults and cruelties were heaped upon him without any hope of redress. If he was a slave he must remain a slave for life. Christians were not allowed to assemble together for worship. Their churches were destroyed;, their books were burned, and they were themselves tortured and martyred. These sufferings were borne with patience; death was met with exaltation, for to them it meant "being with Christ, which is far better." Men who had known little of Christianity before, or had been deceived by false accounts of it, wondered at such

heroism, admired it, tried to find out the secret of it, and Christianity flourished more and more.

In less than 300 years after the Crucifixion the position had altered so greatly that the Emperor Constantine formally granted toleration to Christians. He moved his capital to Byzantium, which is now called Constantinople, and round the city Christianity organised itself in eastern Europe as the Greek Orthodox Church, while the Christianity of western Europe, centring on Rome, became the Roman Catholic Church and claimed the headship of the faith for the bishop of Rome as the successor of St. Peter, under the name of the Pope, or Holy Father, of Christendom. Gradually the Roman Empire ceased to exist as a Power dominating the world, and the closely organised Christian Church of the West became the most far-reaching and uniting influence. While the Roman Empire was shrinking, the Church which had made Rome its capital was expanding beyond what had been regarded as the borders of civilisation, and in course of time it became the religion favoured by the temporal Government.

# THE FOUNDING OF THE FIRST CHURCHES OF THE EARLY CHRISTIANS

Warlike races who knew nothing of either Christianity or the fanciful poetical religions of Greece and Rome were pressing from the north and east on the nations that lived around the northern Mediterranean shore. As they gradually crushed the Roman Empire they were met by something stronger than the imperial legions. They were themselves conquered by the gentle religion of Christ.

By the time the Christian religion had established itself firmly everywhere around the great sea of southern Europe, and in the Near East, its method of worship and expansion had greatly changed. early disciples went forth from place to place in the simplest manner, preferably in pairs, and sometimes, like Paul, earned their own living on their journeys. As the Christians grew in numbers they organised churches and took the Jewish synagogues as their first models. During periods of persecution they met in secrecy. But later, as security was attained, they felt that the arts of architecture and painting might fitly be used to give dignity to their adoration of the Almighty, and many devout men separated themselves from the ordinary work of the world and

# THE LITTLE POOR MAN OF ASSISI



FRANCIS OF ASSISI, LOVING THE LITTLE BIRDS AS HIS BROTHERS AND SISTERS, BROUGHT THE SELFLESSNESS OF JESUS INTO HIS AGE 6917

pledged themselves to a holy life, while as missionaries they spread the faith throughout the heathen lands by which the Roman Empire was surrounded.

The separation of Christian people into those who, on the one hand, tilled the soil, or traded by land and sea, or engaged in useful industries, or served as soldiers under kings or nobles, or, on the other hand, those who made religion their principal concern by being church dignitories, or parish priests, or monks in monasteries, or wandering friars, constituted the most vital division of human scciety in those days.

# A GREAT BODY WITH A POWER MIGHTIER THAN KINGS

The Church became rich and powerful, owner of large estates, and with vast influence apart from its religious duties. The clergy were almost the only people who had the leisure and means for acquiring the knowledge contained in books, and that added to their power. So, instead of Christians being a scattered body of loyal followers of Christ, they were compactly formed into a mighty Institution more powerful than the greatest of kings. It was, however, very earnest in spreading the Gospel everywhere, as we may see by studying how it Christianised the British Islands at an early date.

When did Christianity first reach our country? No one knows exactly, but it seems probable that in less than fifty years after Christ was crucified outside Jerusalem Roman soldiers brought the Christian faith to this distant island in the northern seas.

# How christianity came to britain fifty years after calvary

About thirty years after the Crucifixion, Paul, who had been preaching throughout Palestine, Asia Minor, and Greece for a quarter of a century, was brought a prisoner to Rome, where he continued his work in captivity till his martyrdom, probably in A.D. 62. We know that his teaching had appealed to the Roman soldiery. Between A.D. 70 and A.D. 80 Julius Agricola came twice to Britain to complete the conquest of the country. First he came as a general and then as governor, and, after putting down rebellions, he made Roman influence permanent by establishing towns here and Among the towns apparently founded at this time was Silchester, on the main road from London to the west,

and excavations of the foundations of this early Roman settlement suggest that it had a Christian church.

If this reading of the ruins of Silchester be true, it is evident that less than twenty years after Paul had finished his course, having kept the faith, and less than fifty years after Calvary, the seeds of Christianity were sown in Britain. No doubt they were supplemented by the work of missionaries from Gaul, where Christianity quickly became rooted.

That the British who lived for three hundred and fifty years under Roman rule were in a large degree Christian is proved abundantly. Before Constantine, who was first proclaimed Roman Emperor at York, adopted Christianity as the Imperial religion, and before he founded Constantinople as a Christian capital, the Christians of Britain were so well organised that they sent three bishops to represent them at a great council at Arles, in the south of France, in 314.

# HOW BRITAIN CAME TO BE BLOTTED OUT OF THE RECORDS OF THE CHURCH

St. Patrick, the patron saint of Ireland, was a Briton who went there as a missionary. A Briton began missionary work among the Picts. Pelagius, a religious thinker whose views raised arguments among Christians throughout the world, was a Briton. All the traditions of the legendary British King Arthur picture him as a Christian prince in a Christian land, fighting bravely against the incursions of heathen from over the sea. It is clear that when the Romans left Britain they left Christianity in all its more civilised parts, in close touch with the great Church organised from Rome.

Yet, a hundred and fifty years later, when Pope Gregory saw slaves from England in the Roman streets, he gazed on them with strange eyes, and only saw in them handsome heathens of an unknown race. The land was blotted out of the records of the Church. It had to be re-missioned.

No wonder we have little knowledge of the story of our land under the Romans, except from Roman books written at a distance, and the slender records dug out of the ruins of a world overthrown. Our fierce English forefathers, in ruthless hordes, obliterated the religion, social life, language, the very existence of the Britons of the fertile lowlands, and established heathenism in new forms.

A hundred years of oblivion followed, tempered only by the vague recollections which survived in the mountainous borderlands. The very alphabet in which records were made was changed. The Britons had accepted Latin as the language of learning. The English brought with them their rude Runic alphabet, which even yet we can only interpret doubtfully. The overthrow was complete. Christianity was uprooted.

# THE CHURCH'S GOOD WORKS GIVE IT A

It is usual to say that the second Christianising of England came through Gregory sending Augustine and a body of monks from Rome into Kent in 597, when Ethelbert, the chief English king of his day, was converted, but this is only partly true. The re-missioning of Britain had begun thirty years before the arrival of Augustine. Ireland, Christianised from Britain, repaid the debt by sending Columba and his successors to the islands of Scotland, the lowlands, and the north of England. As soon as the heathen conquerors settled down and ceased to be plundering rovers, the monks of Iona approached them from islands on the west, where they had founded lonely retreats for prayer and a religious life. Thus England was Christianised afresh by simultaneous advances from north and south. The methods used were different. The southern missionaries were organisers and politicians and worked through the Courts of kings; the northern missionaries relied on the quiet influence of good lives. They produced the greater number of saints, and their work though less rapid was more sure.

A time came when the two movements merged into one; but a sign of the existence of two movements remains to this day in the fact that there is an Archbishop of York as well as an Archbishop of Canterbury.

# How the south held the fort for christianity in Britain

As the men of English race became more settled, and passed more fully under the influence of Christianity, the Church gained a fresh hold on the people by being the repository of learning, the centre of all education, the reliever of the poor, and the protector of the oppressed. In this work the Church movement in the north distinguished itself, producing the fine scholars Bede and

Alcuin. It became known through Europe for its learning and missionary zeal.

Then came the second heathen invasion. New hordes of Northmen ravaged every Their fury, directed most fiercely against churches and monasteries, fell disastrously on the north. Northumbria and central England were swamped by the Danish hosts. The overthrow was not so complete as the overthrow of Celtic Christianity had been, for the whole kingdom was never engulfed at one time, and these later invaders were more nearly akin to the English than the English had been to the Britons, and so were more susceptible to absorption. But religion and learning went down for the time being in the north, and this time it was the south that held the fort for Christianity, and achieved a second revival of learning, and a gradual reexpansion of the Christian faith throughout the desolated provinces.

Not, however, till the story of these fluctuations in British Christianity had filled nine hundred years was it finally established beyond peril. Surely a country that has been Christianised at such a cost ought never to flag in its efforts to pass on the blessings of its faith to less fortunate lands.

# THE BEAUTIFUL AND USEFUL LIFE OF POPE GREGORY THE GREAT

We have mentioned the names of Pope Gregory, Bede, and Alcuin as notable in the early religious history of Great Britain. Pope Gregory the First bears in history the name of the Great, and right well he deserves it. He was a Roman noble who might easily have become one of the greatest officers of the Roman Empire: but he chose rather the life of prayer, and of service to God, with no thought of his own honour, yet, out of his selfdenial the highest honour came to him unsought. Gregory's wisdom and goodness won him such love in Rome that when Pope Pelagius died all men said no other man should be pope but Gregory, and though he strove hard to be excused, no other man would they have. He wished to come himself to Britain as a missionary, but the rulers of the Church would not allow him to leave Rome, where he was much needed. It was Gregory who gave the Church the fine, stately chants that are called Gregorian.

The life of Bede was a beautiful one, spent far from the din of the battlefield,

the bargaining of the market, and the pleasures of the Court.

All his days were passed, though he was the greatest scholar and teacher of Anglo-Saxon times, in the peaceful monasteries at Wearmouth and at Jarrow. There he studied, wrote, and taught the six hundred youths who gathered round him. For them he wrote text-books covering the then known field of knowledge; for them, and for the people, he wrote a history of the English Church, telling how Christianity was brought into the country.

So earnest and noble-minded a scholar could not bear to think that the greatest book ever written should remain a sealed book to every person unable to read Latin; and he was determined, if God gave him strength to do it, to translate at least the Gospel of St. John into Anglo-Saxon, that all might hear and understand it in their own tongue. Fortyfour works, mostly in Latin, he had written during his busy life of teaching; one more, the Gospel of Love, he would leave behind him. He was getting ill and feeble, but he would not leave even to the ablest pupil a work so important as the translation of the Gospel. "I will not have my boys read a lie," he declared, "nor labour fruitlessly after my death.

# THE LAST DAYS OF THE BEAUTIFUL LIFE OF THE VENERABLE BEDE

Day by day Bede grew weaker; but, refusing to rest he continued cheerfully, dictating to his scribe. One of his scholars, Cuthbert, wrote a description of the last hours of his revered master, and an artist has painted a beautiful picture, given on page 591, of the old man on his couch in his little cell, with a youth before him eagerly taking down his words.

In his History of the English People, John Richard Green thus describes the scene:

The dawn broke on another sleepless night, and again the old man called his scholars round him and bade them write.

"There is still a chapter wanting," said the scribe as the morning drew on, "and it is hard for thee to question thyself any longer."

"It is easy done," said Bede. "Take thy pen, and write quickly."

Amid tears and farewells the day wore on to eventide.

"There is yet one sentence unwritten, dear master," said the boy.

"Write it quickly," said the dying man.
"It's finished now," said the little scribe at last.

"You speak truth," said the master. "All is finished now."

Placed upon the pavement, his head supported in his scholar's arms, his face turned to the spot where he was wont to pray, Bede chanted the solemn "Glory to God." As his voice reached the close he passed quietly away.

# THE GREAT SCHOLAR WHO CARRIED

Alcuin, who was born in 735, the year when Bede died so gloriously, was the great scholar who carried on in the north of England the educational work of Bede, and then accepted the invitation of the Emperor Charlemagne to go to the Frankish Court at Aix-la-Chapelle, and there, and later at Tours, established a school of Continental education, which survived when the storm of Danish barbarism had swept away the culture of Yorkshire and Durham.

There were other remarkable men who were connected with the Church in England in early times, and by their actions and disputes showed what was going on in other countries also, as questions of power and privilege arose between the rulers of the Church and the rulers of the different States. One, Bishop Dunstan, who was born in 925, was the real ruler of England for many years. He made numerous changes increasing the power of the clergy, and setting them apart from the rest of the people. One of his rules was that they should not marry.

# DUNSTAN, THE GOOD FRIEND OF THE SLAVES IN ENGLAND

A very good thing he did was to give protection to slaves, and to teach their owners that it was good to set them free. For in those days there were many slaves in England, and the law suffered their masters to kill them, and laid but light penalties on anyone who slew a slave. But Dunstan taught men that slaves are quite as good as other men in God's sight, and that the priests could not pronounce the words of pardon for wrong done to a slave unless the wrongdoer repented of his sin and did penance for it as much as if he had wronged a free man.

When William the Conqueror made himself King of England, nearly a hundred years later, he was ill-pleased with the state of the Church, for the clergy had gone back from the strict ruling of Dunstan, and he brought over, to be Archbishop of Canterbury, an Italian who had been the

head of the Abbey of Bec, in Normandy. His name was Lanfranc. William wished to have the Church to help him in keeping the Norman barons from becoming too powerful and troublesome, and he knew that Lanfranc would assist him.

To this end Lanfranc persuaded William to increase the power and wealth of the Church, and to separate the clergy from the laity even more than Dunstan had tried to do. Therefore, in the bishoprics and at the head of the great monasteries, called abbeys or priories, he set, whenever it was possible, not Englishmen, but foreigners who lived by the stricter rule.

Lanfranc put an end to the practice of the clergy marrying, and he arranged with the king that from this time the clergy should not be subject to the ordinary laws of the land in their private doings, but only to the law of the Church, and should be judged only by courts made up of clergy; and that, moreover, if there were disputes between clergy and laity, these Church courts should judge.

# LANFRANC PERSUADES WILLIAM TO BUILD UPTHE POWER OF THE CHURCH

Soon after William Rufus succeeded William the Conqueror Lanfranc died, and the new king not only neglected to appoint a new archbishop, but seized for himself the money which the archbishop should have had for the Church. Yet when William fell sick and thought he was about to die, he feared for his soul because he had robbed the Church, and so he appointed a new archbishop. Yet he fancied he could save his soul if he died, and continue in his evil courses if he lived, if he chose for archbishop someone whom he could frighten in to working his own will; and so he would have a certain very gentle and pious scholar named Anselm, another Italian, who was now Abbot of Bec as Lanfranc had been. Anselm soon showed William how he had misjudged his gentleness. The great Anselm was a very lion for boldness in the cause of justice and righteousness, and would in no wise obey the king's behests when they were evil, as they commonly were. Nor would he suffer William to rob the Church or to set up bishops and abbots who would do his bidding and pay him great sums of money.

The strife between them became so hot that Anselm had to leave England. When the Red King was dead, and the wise King Henry the First reigned in his stead, Anselm came back to England,

and made agreement with the king readily that the bishops and abbots should do the king homage for their lands as the barons did, but should be appointed according to the rules of the Church, and not according to the will and pleasure of a king whose intent might be evil.

# THE QUARREL BETWEEN CHURCH AND STATE THAT WENT ON FOR YEARS

This quarrel between the king and the archbishop was a part of a great quarrel between Church and State, which had been going on for many years. had been at Rome a monk named Hildebrand, who had been the chief adviser of more than one of the popes, and then himself became Pope Gregory the Seventh. Gregory held that it was the will of God to rule the world through two powers the temporal power, which means the emperors and kings of the different countries, and the spiritual power, which means the Church ruled over by the Pope. Of these two powers he accounted the spiritual power the greater, and so it seemed to him that the reign of God upon Earth would be made manifest only when emperors and kings humbled themselves before the Pope. This he believed all the more because he knew that he himself loved righteousness and hated iniquity, whereas the emperors and kings sought their own advantage more than the glory of God.

# THE PENITENT EMPEROR WHO STOOD IN THE SNOW FOR THREE DAYS

Accordingly Pope Gregory would have the Church set wholly free from the rule of emperors and kings. But these were in no wise ready to believe that the bidding of popes and bishops was in very truth the sound of the voice of God; they would have all men in their realms obey them, priests as well as laymen. So there was deadly strife between Pope Gregory and the Emperor Henry the Fourth of Germany.

Seeing that those who wished ill to the emperor were ready enough to aid Gregory against him, the emperor was forced to humble himself for a time, and to stand in the snow in the garb of a penitent for three days, praying for the Pope's pardon at a place called Canossa, though in after time he defied Gregory again and got the better of him. Yet Gregory had taught so many men to believe that in this quarrel the cause of the Church was the cause of God, that for nearly two hundred years it often

seemed that the Pope was mightier than emperor or king.

It will be seen that the Church had travelled far away from the state of things when it was persecuted by kings. It now claimed to call them to obedience and rule them in the name of God. attitude culminated during the life of a Pope whom some people reckon was the greatest who ever claimed to be a successor of Peter: while others think that, though he was undoubtedly a sincere man, he was far from seeing at times what was righteousness and what was iniquity. This was Innocent the Third, who was the youngest man who was ever made Pope. Gregory, he believed that the Pope was set over the Church and over all men as a ruler, having all sceptres and thrones subject to him.

#### STEPHEN LANGTON WHO NEVER FLINCHED AS THE CHAMPION OF FREEDOM

So great was Innocent's power that he was able to decide which of two princes who claimed to be emperor should be acknowledged. When Philip Augustus, King of France, committed sin, he made him cease from his wrong-doing, and the King of Leon, in Spain, in like manner. Also he placed England under an interdict, and would have taken away King John's crown and given it to the King of France if John had not made submission. Innocent thought he was doing rightly, though in England there were few who were ready to admit that any foreign priest, were he the Pope himself, had power and authority to choose a king for England. One thing, however, he did for which all Englishmen should respect his He chose as Archbishop of Canterbury Stephen Langton, a man who feared neither Pope Innocent nor King John, but stood up manfully for justice and right, claiming from the king for the Church no more than the Church's due, and yielding to the Pope's bidding no more than was his due. For what he had at heart was the good of the whole people of England.

When Innocent was reconciled to John by the king's submission, Langton was none the readier to suffer John to play the tyrant, but himself took the chief part in uniting the barons to demand from the king the great Charter of English liberties. This he did, though Innocent himself bade him desist. When John was dead, and some of the barons disliked the Charter because it hindered them from playing the tyrant over their vassals, it was by Langton's influence that the Charter was again confirmed in spite of them.

Pope Innocent the Third not only claimed the right to rule kings but also forcibly to rule the inmost and most sacred beliefs of every individual man.

#### TERRIBLE DAY IN THE BITTER A HISTORY OF PERSECUTION

The freedom of men to obey, on their own account, the loftiest thoughts and aspirations that come to them was at stake. Terrible persecution, as bad as the early Christians ever suffered, was started against good men by the Church, and was enforced by war and by law. The crime punished was heresy; that is, not believing what one cannot believe.

Most strangely, at the very time when wholesale slaughter was being practised on the Albigenses—Christians in the south of France-and as many as 200 were burned in a single day, a movement began within the Church, and gained the approval of Innocent the Third, for returning to the simple purity and loving kindness of Jesus Himself, as they shone forth from His life and teaching.

A young man named Francis, son of a rich merchant of the Italian town of Assisi, after an early life of gaiety and thoughtlessness, became deeply impressed by the need for a simple, wholly unselfish, joyous goodness. He took as his ideal, in fact, the life of our Lord as we have it preached in the Gospels. Never has there been a more Christ-like life than that lived by Saint Francis of Assisi.

#### FRANCIS OF ASSISI, THE CHRISTLIKE FOLLOWER OF THE MASTER

He insisted on assuming poverty, living with the poor, and making loving kindness towards all living creatures the motive force of his whole being. In seven years a brotherhood of 5000 men had been formed accepting the same vows that he had taken. Thus the Franciscan Order was established within the Roman Catholic Church. It illustrated the original and simple Christianity of Christ side by side with the form of Christianity which had been built up through the ages—the Kingdom of Heaven within the heart, and the Kingdom of Earthly Pomp which the Church had come largely to represent.

The war between those two ideals has been going on ever since in Christianity, and its progress must be traced in our next and final chapter.

The Interests and Pleasures of Life for All Indoors and Out



## HOW TO PLAY RACQUETS

Racquets is a game very similar to fives, which is described fully on page 6927, the chief differences being that it is played in a much larger court, with a back wall in addition to the front and side walls, and that instead of using his hand the player strikes the ball with a racquet. This racquet is very much like a tennis racquet, but the frame is smaller and the handle longer. The leather-covered balls are hard, and about the size of a large walnut.

The floor and walls of the court are made of cement, or some other hard substance. For the single game with one player on each side, the court should be about sixty feet by thirty, and for the double game with two players on each side, it should be about eighty feet by forty. The walls and floor are coloured black.

Across the front wall, seven feet nine inches from the ground, is painted a white line, known as the service line or cut line. The lower part of this wall, to a height of two feet two inches from the ground, is covered with wood, and is known as the board, the object of this being to enable the players to know by the sound whether a ball strikes above or below the play line, as the top of the board is called. The back part of the court is divided into two equal oblong sections, into one of which the ball must be served. The service boxes are spaces, eight feet square, marked on the floor, from which the server strikes the ball. There is a diagram on page 6924.

When it has been determined who shall serve first, the server stands in the left section box, and throws the ball up so that it will hit the front wall above the service line, and rebound into the space B. The opposite player then strikes the ball, either volleying it or hitting it after it has bounced on the ground once. In doing so he must see that he hits the front wall above the board.

If when being served the ball should first strike a side wall, or the roof or floor before hitting the front wall, the striker loses his innings. The ball must hit the front wall above the white line first, and then fall into court B if served from the left service box, or into court A if served from the right service box. Anything else is called a fault, and the other player need not take it. If, however, he attempts to take it, the game goes on as if the service had been correct.

If the server wins his point he crosses to the right service box and serves as before, but making the ball bounce into court A. If the opponent fails to return the ball, the server scores an ace or point. The server is hand-out, that is, gives place to his opponent, who becomes the server, if he makes a fault twice in succession, if the ball in returning strikes his person, if he serves the ball on the board or out of the court, if the ball served touches any other part of the court before striking the front wall, if he fails to return the ball in play to the front wall, if he returns the ball in play so that it goes out of the court, or if the ball in play touches him in the act of striking. In any of these cases the server-in is out, and the previous hand-out takes his place as server.

A let is when either player undesignedly prevents his opponent from returning the ball served or in play, or when the ball in play touches the striker's opponent on, or

CRAFTS · GAMES · NEEDLEWORK · PUZZLES · SCIENCE EXPERIMENTS

above, the knee, and is thereby prevented from reaching the front wall above the board. In case of a let, the service counts for nothing and the service serves again. The ball served or in play may be struck either before it reaches the ground or after it has bounced once. The player who first scores fifteen wins the game.

In the double game play is very similar, but there are one or two additional regulations.

If the server loses his point his partner takes his place, each pair of players having to be put out before the next pair goes in. The game is fifteen, but at thirteen all the out-players may set to five, and at fourteen all, to three. Should the ball after being

served touch the server or his partner before bouncing on the ground, the server is out. If a player in returning the ball strikes the body or racquet of his opponent, he is out, or has one point counted against him, according to whether he is in or out. If a player intentionally impedes a striker, or takes a ball out of his proper turn, a point is counted against him. If a server makes two consecutive faults he is out.

Few games give better exercise or need a quicker eye and a stronger wrist, and a player to succeed at racquets must have considerable endurance.

At first we shall find it will be found much safer to take the ball after a bounce than to attempt to volley it.

### HOW TO PLAY BOWLS

Bowls as a game is about seven centuries old, and there is a club at Southampton which has maintained its bowling green since 1299. The game has been made for ever famous by the fact that Sir Francis Drake was playing it on Plymouth Hoe when news arrived of the approach of the Spanish Armada. By the way, Drake finished his game before setting out to fight the Spaniards, but lost it to Sir John Hawkins.

The game is played on a green which is supposed to be so level that it will take the spirit level at any spot. There is no regulation size for the green, but where possible it should be 42 yards long, and the width of the playing space from 19 to 21 feet.

The appliances for the game are eight bowls and one jack, or small ball, usually of earthenware. The bowls are large, heavy balls, made of lignum vitae, and are made with a bias, that is to say, when they are turned one side is cut away a little, so that when the ball is bowled, after running straight for a considerable distance, it begins to describe a curve as it becomes spent. This enables a player to send his bowl round another which is blocking his path to the jack.

The game is played in different ways, and there may be any number of players, but we will describe a game in which there are four players who take sides, two being on each side. One of the players throws the jack to a distance of at least 25 yards, and then, the bowls having been distributed in pairs to the players, the first player rolls one of his bowls to get it as near as possible to the jack. A player of the opposite side then rolls one of his bowls with the same object, and so alternately the two sides take turns.

When all have been rolled their positions are examined, and a point counted for every bowl belonging to one side that is nearer the jack than the nearest bowl of the other side. Play then begins again from that end of the green, the jack this time being thrown by the winning side, and play following as before. So the games go on from alternate ends of the green till one side has won the set, which may be any number of games, usually 21.

Instead of playing one bowl each alternately, sometimes the players play in pairs. Thus A sends down his first bowl, then B his first, then A his second, and B his second; after which C sends his first, then D his first, C his second, and D his second.

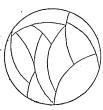
If eight players play, four a side, there must be two sets of bowls, or sixteen. When throwing the jack or rolling a bowl the player must have one foot on a footer, or mat, and the other behind it. This mat, of course, remains in position throughout the game, and at its conclusion is carried to the other end of the green for the next game.

One or two rules may be mentioned. If a player plays out of turn the other side plays the two following bowls, provided there remain two to be played, but there is no other penalty. No player may play a bowl while the jack or previous bowl is in motion.

If an opponent's bowl be played by mistake, he may play the other's bowl, or he may take up the wrongly played bowl and substitute his own in the same position. If any doubt arises to which of two bowls is nearer the jack when the game is being counted, either side may claim a measure, when one player holds the measuring tape to his own or his partner's ball, and the opponent holds it to the jack.

In playing the bowl should rest in the hollow of the player's hand, and be delivered with an easy swing close to the ground. To turn the bowl from right to left towards the jack, the oval end should point toward the left, when held ready for rolling, and if it is desired to turn to the right, it should be held the reverse way.

#### SOLUTION OF THE BROKEN PLATE



On page 6794 is the Puzzle of The Broken Plate. All the pieces were found, but the owner could not put them together to make a perfect plate. The picture shows how the puzzle was solved so that the plate could be mended.

6924

## HOW TO PLAY LACROSSE

The game of Lacrosse, which came to England from Canada many years ago, was adapted from a ball game which the Indians of North America used to play. In those days whole tribes would take part in the game, but now it is played between sides of twelve players only.

Each player uses a crosse, a long hickory stick with a net of hide and gut, and a ball made of indiarubber sponge, about the size

of a tennis ball, is used.

The game is to throw this ball with the crosse through the goal of the opposing side. At first it will not be found at all easy to catch the ball on the crosse and return it in the desired direction, but with practice this will soon become as natural as kicking a football, and it will be possible to catch the ball and pass it to another player with ease while on the run.

The two goals are each six feet wide and six feet high, and are placed facing each other about one hundred yards apart, though this distance may be increased up to 130 yards. Surrounding each goal is the goal crease, a square marked in white with sides twelve feet long.

In addition to the twenty-four players there are two umpires, one at each goal, whose duty it is to say whether shots at goal have really scored, and who also watch carefully the play in front of goal to see that no infringement of rules occurs. There is also a referee, who is in charge of the game, and whose decision on all points must be accepted.

The diagram shows the positions taken up by the players. H stands for the players of the home team, and A for the players of the away team. A peculiar feature of the play is that every player, with the exception of the goalkeepers, is directly marked by a

player of the opposing side.

When all is ready, the two Centres face each other and place their crosses on the ground back to back with the ball between them. On the order to "Play" being given, the crosses are drawn apart from each other before being lifted from the ground to take up the ball.

The Goalkeeper, Point, Cover Point, and Third Man are all the time on the defence, while attack is made by Third Home, Second Home, and First Home, who should score the goals, First Home being the chief goal-scorer. The work of the two Attack Fields is to keep their attacking men in front of them well supplied with the ball; and the two Defence Fields have their attention fully

occupied with marking the two Attack Fields of their opponents and preventing them from getting the ball too often. The Centre must be a good, all-round player, for he will be wanted in many parts of the field, at one minute assisting the defence, and the next far away up the field with the attack.

Though it is most important that all players, especially those attacking members of the team, should be experts with the crosse, it is by no means out of place for the ball to be helped along with the foot or leg. But no goal may be scored in this fashion. The only player who is allowed to handle the ball is the goalkeeper, and he may only do so by way of preventing the ball from reaching goal.

If the ball comes off any part of a defending player, however, and enters the goal, it

counts as a goal to the attacking team. If a member of the attacking team is within the goal crease when the ball enters goal the goal is not allowed.

If, in the course of play, the ball goes out of bounds, the Referee calls "Stand," and the players must come to a standstill. Failure to do so counts as a foul. The ball is then brought to a position at least four yards within bounds, is faced as at the beginning of the game, only by the two nearest players, and play is resumed on the order of the Referee. The other players must keep more than five yards from the players who are facing.

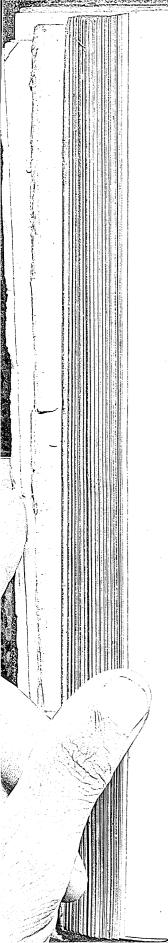
Rough play such as tripping, holding, deliberate charging, or shouldering is not allowed and counts as a

foul. Neither may a player hold the crosse of his opponent or kick it. For such breaches of discipline the referee may award a penalty, which may take the form of a "face," ordering off the offending player, or by awarding the offended player a free position, which means that he may take the ball on his crosse while all the other players are at a standstill, and throw the ball as desired. This must not take place within ten yards of goal, however; neither may other players be within five yards of the player awarded the free position.

Unlike games such as cricket or football, if a player of one side is unable to continue play through an injury, the other side must also lose one player to level matters.

The game usually lasts for an hour and a half, forty-five minutes being played in each direction, though it is not necessary to play for such a long time; indeed, half an hour each way will often be found long enough, as Lacrosse is rather a strenuous game.

Home Goal Н Goalkeeper Point H A First Home Cover Point H A Second Home Third Man H A Third Home H Defence Fields H A Attack Fields A Centre H H Attack Fields H A Defence Fields A Third Home H A Third Man Second Home H A Cover Point First Home H A Point Goalkeeper Α Away Goal



## PIGEONS AND HOW TO KEEP THEM

Most of the great breeders and exhibitors of fancy pigeons began in their boyhood by keeping a single pair of pet birds, and any reader of this book can begin in the same way. Pigeon-keeping is one of the oldest of hobbies, having been followed by the ancient Egyptians and by the Greeks and Romans.

Some boys begin with no better pigeonhouse than a wall-box made from an old packing-case, but there are disadvantages in any such arrangement. It is too limited in size, provides no flying-space, and is generally accessible to cats.

Much better is it to begin with a shed or outhouse—an old chicken-house will do very well—and to convert this into a permanent pigeon-cote. If the ground is at all damp a raised floor should be built so that air may circulate underneath, and a wire run like that of a fowl-house may be constructed, but considerably higher, and fitted here and there with branches or perches for the pigeons to rest on. This will make a useful flight, and it should certainly be not less than eight feet high. The size will be regulated by the space at our disposal, but the bigger the better.

There must be an adequate opening between the house and the flight, with a landing-place on each side. Of course, a flight is not absolutely necessary, but if we intend to keep choice and rare breeds it is safer, as in some of these birds the homing instinct is not strong, and we are liable to lose them if they are free.

Inside the pigeon-house a series of nestingboxes must be arranged in tiers, and these should be placed on one side, and short perches fixed round the other sides. In the middle of the floor should be kept a vessel of water, and in different parts of the house boxes filled with grit. The floor must be strewn with sand or sawdust.

The short perches should be so arranged that the pigeons on one cannot reach those on another. The birds will quickly select their own perches. If the perches are placed one above another two pieces of wood fastened together, gable fashion, must be attached to the wall just below, to prevent anything falling on the pigeons below.

Each nesting-box for a pair of pigeons should be divided into two compartments. This enables the hen-pigeon to lay a second clutch in one division while young birds are occupying the other. There should be entrance holes to each compartment, side by side with a short platform in front, to do duty as an alighting board for both. Long platforms serving several nesting-boxes must be avoided, as they lead to quarrelling among the birds. The size of each compartment should range from 12 inches by 12 inches by 10 inches high to 14 inches by 14 inches by 12 inches high.

according to the breed of pigeon kept. These vary considerably in size.

The interior of the pigeon-house should be fairly well lighted, and thoroughly ventilated without being draughty. It must be frequently cleaned out to keep everything sweet and wholesome. In the open-air flight, cover the floor with fine gravel or shingle. As the drinking vessel in the house must be of such a form that the pigeons cannot bathe in it, a large, shallow bath full of water should be kept in the flight. A drinking vessel should also be kept there.

The birds may be fed by hand at regular intervals; but a suitable arrangement is to have in the house a self-supplying hopper. They can then feed themselves, and will not be dependent on our presence. Small maize, wheat, grey peas, barley, tares, and buckwheat should be given; beans, peas, and maize being increased in quantity in winter, and wheat, barley, and tares in the summer. Fresh lettuce and cabbage may also be supplied, and hemp seed from time to time as medicine.

Of course, if we can always be regular in our attendance, it is better to feed the birds ourselves at proper intervals, rather than to rely on the self-supplying hopper. Two meals a day is sufficient, and only as much as the birds will eat up should be given at one time.

The mixture for the grit-boxes already referred to is made up by taking half a peck of gritty sand, half a peck of old lime mortar, and three and a half pounds of coarse salt, and mixing them well together. Such a supply will be sufficient for a year, and will help to keep the birds healthy.

The hen-pigeon lays a clutch of two eggs, and the period of incubation is about seventeen days, during which the hen covers the eggs at night and the cock-bird by day.

As to the breeds we are to keep, this is largely a matter of taste, but we should begin with the long-faced and hardier breeds, as these will bring up their young without any assistance and are easier to manage. Among breeds which may be suggested for the beginner are the archangel, carrier, magpie, mookee, and nun. These are all hardy and rear their young without difficulty.

The beginner must avoid the very common error of trying to keep too many birds in one house. If this is done, or if the house is not cleaned often enough, or if the drinking-water is not frequently changed, the birds are liable to get a disease called canker.

Pigeons are quarrelsome birds and often fight, and in cases of injury we should remove any loose feather, and bathe the wounds with disinfectant, afterwards applying zinc ointment.

When the pigeons have come to know their home and have nested, they may be allowed to fly freely, as they will return to their nesting-boxes.

## HOW TO KEEP A PET SQUIRREL

The squirrel makes a very attractive and interesting pet, but we should always see that the animal we obtain is a young one, and, if possible, a squirrel that is born in captivity.

It is unkind to capture an animal that leads so active and unfettered a life, after it has passed infancy and knows what the freedom of the woods is like; and, in any case, such an animal is difficult to tame, and is always likely, when suddenly alarmed, to give our finger a nasty nip with its teeth.

The squirrel born in captivity is almost invariably free from this undesirable habit, and can be tamed much more easily. It is very cruel to keep such an animal in a small cage, and above all to place it in one of those cages which consists entirely, or almost entirely, of a revolving wheel.

A roomy cage should be provided, in which a revolving wheel is merely an apartment to which the squirrel can resort or not as it likes. In this form the wheel is useful, as it enables the squirrel to take the exercise without which it cannot keep healthy. We must remember that the squirrel is by nature a very agile creature, springing about from tree to tree and playing among the leafy branches almost incessantly. No cage should ever have its main compartment less than three feet square, and five feet high; and if we can provide a bigger one for our pet all the better

Near the roof a sleeping box about a foot square should be provided, and warmly lined with soft clean hay. The floor must be sprinkled with sawdust, and this should be covered over with hay or broken straw to prevent it being scattered all over the cage as the squirrel scampers over the box. A tree

branch should be firmly fixed in the cage, one fork leading to the sleeping-box, and in a large cage a trapeze may be added.

In buying a squirrel it is best to obtain our animal in September, when its coat is in the best condition. The feet must be clean, the eyes bright, and the teeth white. If the teeth are yellow the animal is old and should be rejected, for it will be difficult and perhaps impossible to tame it. Kind and gentle care will soon make a young squirrel very friendly and affectionate.

The feeding of a pet squirrel is by no means a difficult matter. Plenty of nuts should be provided, beech, Barcelona, walnut, hazel, and monkey nuts, but not the oily kinds like the Brazil. Acorns, wheat, and stale bread are all useful, and boiled rice, and bread-and-milk, well strained, should be given regularly. Carrot, swede, apple, and boiled potato are also good, and occasionally a little cooked meat. Of course, if the animal is very young when we first get it we must break the shells of the nuts and chop up the kernels very small. Later on it will learn to do this for itself, but it must be brought on to adult food gradually. Two meals a day are sufficient.

It is very necessary that the cage should be kept thoroughly clean, and a supply of fresh water must be provided all the time.

Squirrels are certainly very attractive pets, and we shall never tire of watching their playful tricks, graceful actions, and queer attitudes.

The name squirrel is from a Greek word made up of two other words which mean shade and tail, and this is, of course, a reference to the squirrel's habit of shading its body with its tail when at rest.

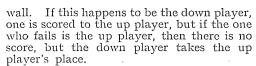
## HOW TO PLAY FIVES

FIVES is a very ancient game and is popular at most of our public schools. It is played in a court which has three sides, and there are two kinds of courts, one known as the Eton and the other as the Rugby, after the two famous schools where they originated.

The Eton court consists of three walls coated with concrete, and a stone floor sloping downward from the front wall, and divided into an inner and an outer court by a step, the inner court being three inches higher than the outer. On the left wall is a curious buttress called the pepper-box, which has a sloping top, and at the bottom forms a recess with the step known as the pepper-pot. The Rugby court has front and side walls but no pepper-pot, and its floor has neither slope nor step. Sometimes the Rugby court has buttresses, and in any case a board runs round the court at a height of 34 inches from the ground. The Rugby game is the simpler, and as it is more often played it is the one described here.

In a single there is one player on each side, and in a double two on each side. In the single one player takes up his position on the left of the court, which is known as "up," and the other player on the right, which is known as "down." The game is begun by the up player throwing the ball against the front wall so that it will strike about the board, rebound on to the righthand side wall, and then on to the floor. The down player now has to strike the ball so that it will hit the right-hand wall, and then the front wall. As it comes down the up player takes the ball, and he can volley it before it strikes the floor, or after it has struck the floor once. The game being started in this way, each player takes it in turn to strike the ball as it comes back from the wall, and he must at every stroke strike the front wall, either directly or by making the ball bounce off one of the side walls on to the front wall.

Play goes on in this way till one player fails in returning the ball to strike the front



It is only the up player that can score, and that by the failure of his opponent to hit the front wall in returning the ball. A score of fifteen is the usual game, but sometimes this takes a long time to attain. With two skilled players the ball is sometimes kept in play at a very rapid rate for many minutes, and there are few games so exciting for both players and spectators.

Skilled players do not, as a rule, get into one another's way, but if by chance one player prevents the other from striking the ball this is called : let, and is not reckoned against-either side.

In the double game the player A takes up his position on the left or up side of the mner half of the court, and his partner B on the right or down side of the outer court. His opponent C takes up his position on the right or down side of the inner court, and C's partner D on the left or up side of the outer court. Play begins as before, with A throwing the ball at the front wall, so that it will rebound on to the right wall and then come down. C returns it and then, if A misses it, there is no score but B takes the place of A, and A goes to B's place.

If in the course of play B loses, then that side goes down, and C and D go up, C taking the left-hand inner court where A started. The side which has a player in the left-hand inner court is always the up side, and any miss by the down side counts one to the up side. If the down player who is playing in the right-hand inner court misses three times in succession, he changes places with his partner.

If any player hits the ball so that after striking the wall it bounds out of the court, or if he knocks it directly out of the court, this counts as a miss.

It is usual to play in special fives gloves, as rapid play is too severe for the bare hand.

#### HOW TO PLAY BADMINTON

Badminton is a game which has rapidly won popularity in Britain, for it was only introduced from India in 1873.

It is mostly played indoors on a court measuring 44 feet by 20 feet, which is chalked or painted on the floor. A narrow net not more than two and a half feet deep is suspended midway across the court at a height of five feet.

At a distance of six and a half feet on each side of the net, and parallel with it; are the short service lines, while another line runs from the short service line to the back boundary line. Thus two courts are formed on each side of the net. Two and a half feet inside each back boundary line, and parallel with it, is another line, known as the long service line.

Badminton is played with a long-handled racket and a shuttlecock, and two sides of one, two, three, or four players each may take part, though two on each side is the usual game, when the first side to score fifteen points wins.

The side which wins the toss may serve first, or have the choice of courts. If the · winning side serves first the opposing side has choice of courts. The first player on the serving side takes up his position in the right-hand court between the short and long service lines, and must hit the shuttlecock so that it goes over the net and into the court diagonally opposite to him, when the player in that court must return the shuttlecock before it touches the ground.

The shuttlecock must then be kept in play across the net to any position within the outer bounds and by any player of either side. If one of the opposing side fails to return it an ace, or point, is scored by the serving side, and the next service is taken from the left-hand court.

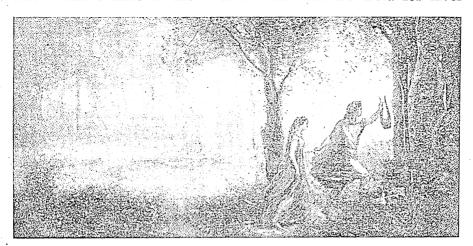
In serving, the shuttle must never be struck when it is at a higher level than the waist-line, or it is a fault, and the hand goes out, which means that the player's turn is finished for that innings, and the opposing side goes in. After the first innings of the game, however, when a hand goes out the next player on his side serves, and not until both hands are out does the other side have its innings.

There are several faults which may mean a hand out if they are awarded against the serving side, or an ace for the serving side if they are awarded against their opponents. If the shuttle is sent out of the boundaries it is a fault; if, in serving, the shuttle fails to clear the net or falls short of the service line, or otherwise falls out of its proper court, it is also a fault. The shuttle must not touch any part of the players or their dress, neither may a player touch the net with his racket or any part of his body.

If, in serving, the shuttle hits the top of the net and continues its flight it is known as a "let" and another service is allowed, as in tennis; but, on the other hand, if the first service is otherwise at fault, no second attempt is allowed.

Though when each side consists of two players the first side to reach fifteen points is usually the winner, the leading side may, if it wishes, on reaching thirteen points set five, or on reaching fourteen points set three. That is, they start scoring again, and the first side to score three or five points, as the case may be, wins the game. The winning side begins the next game, and the winner of two games out of three wins the rubber.

### The Great Stories of the World That Will Be Told for Ever



## ORPHEUS AND EURYDICE

ORPHEUS was a mortal, but people said that his mother must have been Calliope, the muse of heroic poetry, and his father Apollo, the god of music.

He was one of the heroes who sailed in the Argo, and he made a chant telling of their wonderful adventures in quest of the Golden Fleece.

But he was even greater as a musician than as a poet. When his neighbours tried to give strangers an idea of his lovely art they would say that it was magical. Trees bent their boughs to hear him. Hawks and doves, sheep and wolves, forgot cruelty and fear as they listened.

Perhaps the ancient Greeks hid a parable in that story; Orpheus stands for Art, which reconciles men of all politics and creeds, though war-mongers try to separate them into camps of hatred.

Orpheus married Eurydice, a lovely woman who was dearer to him than his fame as an Argonaut or music itself. They had not been married long when Eurydice, walking alone in the woods, saw a man hiding in a thicket. Fearing a robber or a madman, she turned to flee. He pursued. The terrified woman ran blindly, not looking where she went, and trod on a snake.

Hours later Orpheus, after seeking everywhere, found her dead body. One foot was swollen, and bore the unmistakable fang-marks of a serpent's bite.

So great was the woe of Orpheus that he vowed to follow her to the under-world, and dwell there with her if he could not win her back to life.

With his lyre on his back Orpheus wandered far and wide till he came to the gateway of Hades. It was guarded by the three-headed dog monster Cerberus, but at the sound of Orpheus's lyre the creature fawned, and let him pass.

Down a long tunnel Orpheus went till he came to a swift, black river. The banks were crowded with ghosts begging Charon, the grim old ferryman, to take them across to King Pluto. He carried over those who had received burial in the ancient manner, with a coin placed under the dead man's tongue as Charon's fee, but those who had not were obliged to shiver on the banks for a hundred years before he would bring them over free. All ancient religions paid great heed to funerals, and believed that the soul's welfare depended on these ceremonies which propitiated the gods of death.

Charon would have refused to carry a mortal if Orpheus had not sung and played as he stood on the banks. The lovely strains melted even that hard heart, and Orpheus passed over into the dark kingdom of King Pluto.

It was divided by four great rivers, Acheron, Styx, Phlegethon, whose floods were of fire, and Lethe, whose waters brought forgetfulness. Three judges, Minos, Aeacus, and Rhadamanthus, examined all the new-comers, and weighed their good and bad actions in the scales of Themis, the blindfold goddess of justice.

If good outweighed bad the soul was led to the Elysian Fields, a beautiful country where friends and lovers wandered in meadows and groves like those on Earth.

If bad outweighed good the soul was driven to Tartarus, a place of punishment. Here cruel King Tantalus, tormented by hunger and thirst, stood up to his chin in a stream of water, with a branch of fruit hanging just above his head. But every time he stooped to drink the waters flowed back from his mouth, and every time he snatched at the fruit it swung out of reach. Here wicked Sisyphus was compelled to roll a great stone to the top of a hill, but every time he reached the summit the stone slipped from his grasp and ran to the bottom. Here Tityus was chained flat to the ground, while a vulture continually fed on his living flesh. Here Ixion was bound to a wheel, which whirled him round and round in endless misery.

Between Tartarus and the Elysian Fields sat King Pluto, Lord of the Dead, black-bearded, black-robed, and stern. Beside him sat beautiful Queen Proserpine, whom he had stolen from the Earth as she gathered flowers one day, and who returned every spring to visit her mother, Ceres.

Orpheus made his way to their throne. He did not speak but sang his story, and all the under-world listened to that heart's song. Pluto's black eyes grew dim. The wheel of Ixion and the stone of Sisyphus stood still. The flood ceased to torment Tantalus, and the vulture forgot to prey on the tortured Tityus.

When Orpheus was silent Pluto spoke. For the sake of that song he would reverse all the iron laws of his kingdom and let Eurydice return to Earth, on condition that Orpheus did not look at her till they had left the kingdom of the under-world.

Orpheus waited joyfully with lowered eyes till the ghost of Eurydice was fetched. Then he set out on the return journey. It seemed very long, and his impatience to look back at the dear one who followed grew greater at every step. At length he crossed into the upper world, and turned at once with a triumphant cry. Alas! He should have waited till Eurydice, too, had set foot on Earth. No sooner had he seen her than she vanished.

This time he sought to enter Hades in vain. For seven days he wandered on the banks of Acheron, beseeching Charon to give him a passage. Then he returned to Earth, and, sitting by the banks of a river, poured out his grief in a last song.

It was at the time of the feast of Bacchus. Some women called to him to play them a dance measure, and when he paid no heed they began to stone him. At first the stones turned aside harmlessly. But the women drowned the lyre by their shrieks, and then the stones fell true.

Orpheus was killed, and flung into the river with his lyre. As the lyre sank its strings cried "Eurydice! Eurydice!" The gods would not let the great musician's instrument lie in the mud of a river; they set it in Heaven, and it became the constellation called Lyra.

Some say that his body was afterwards drawn ashore and buried, and that nightingales sang about the grave. As for his spirit, it joined Eurydice in the Elysian Fields.

#### THE SHAM IMMORTAL

Salmoneus was the most important person in the universe, to Salmoneus.

He was a king, but that did not content him. He wished his subjects to fall down and worship him. He proclaimed that he was divine. He had a great bridge of bronze built before his palace, and made slaves flash torches about his chariot wheels as they rumbled over it, so that his people should think it thundered and lightened when Salmoneus went forth.

Some rustics were so simple as to believe that their king was really a god, and some courtiers thought it good policy to pretend that they believed it. Then Jove said: "I will show them the difference between god and man, lightning and torches, chariot wheels and thunder."

As Salmoneus rode out in triumph, and men fell on their knees by the roadside, Jove hurled a thunderbolt from Heaven, and the sham immortal fell dead.

## THE BRAVE FRENCH MAID OF NOYON

Ar a house in the little town of Noyon, in France, something had gone wrong with the drains, and workmen had to be sent down to open the drains and clean out the sewer. That is a dangerous thing to do because of the poisonous gases.

In this case four men were busily at work when they were overcome by the sewergas, and were unable to give the signal to be drawn up.

The people in the house wondered what was the matter and grew alarmed, but no one dared venture down.

Then a brave servant maid, a girl of seventeen, begged to be tied to the rope and let down into the sewer.

This was done, and she reached the group of men lying helpless down below. As quickly as her trembling hands would allow her she tied one man to the rope, and jerked it as a signal for him to be drawn up. Willing hands hauled up the burden, and on reaching the surface the unconscious man was still alive.

A second time the girl tied a man to the rope, and he was drawn into safety. But the next time the dangling rope came down for the girl to catch she was gasping for breath. She struggled against the feeling of suffocation, and tried to fasten the third man to the rope.

This she managed to do, but she herself was on the verge of unconsciousness, so, with a desperate effort, she wound her long hair round the rope and tied it tightly. Then she lost consciousness; but the watchers above carefully, very carefully, pulled the double burden up into safety, just in time.

The fresh air soon revived the girl, and then she bethought her of the fourth man down in the dangerous sewer. It was hardly likely that he would still be alive, but there was a slight chance, and so again this noble girl risked her life. But this time her effort was in vain, for the poor man was drawn up lifeless.

The French nation loves to reward a brave action, and some handsome gifts found their way to the unselfish maid who so cheerfully and readily risked her own life for the sake of others.

### THREE CUPS OF COLD WATER

THERE is a saying of Jesus which has woven itself into all the history of humanity, into the periods of famine, the days of battle, and the hours of death. It is the saying that we do Christ service even when we give only a cup of cold water to those who thirst.

Seldom can the heart be lonely If it seek a lonelier still, Self-forgetting, seeking only Emptier cups of love to fill.

Our brave English soldier Sir Philip Sidney, who lived at Penshurst, in Kent, and wrote tender poems under the noble oaks which we may still see spreading their wide arms over Penshurst Park, was one of those who have lived to fulfil Christ's exhortation.

Sir Philip Sidney was called by Queen Elizabeth "the jewel of her times." He was a great scholar and traveller, a poet and musician, an athlete and horseman, above everything else a great gentleman. The nobility of his nature, the bravery of his spirit, and the graciousness of his manner rendered him the most notable and romantic figure of the age in which he lived.

In a battle at a place in Holland called Zutphen this noble man was mortally wounded. He had fought like a hero. Two horses had been killed under him, and still he led his soldiers with a dauntless courage into the thick of the fight. But at last a bullet struck him, and as he reeled in the saddle his horse turned and bolted with him from the field.

When he was in the camp he called for a cup of water. The day was excessively hot; he was in a raging fever; the agony of his wound was indescribable.

With great trouble a little water was brought to him. He lifted himself up, took the bottle, and was about to place it to his lips when his gaze caught the eyes of a poor wounded soldier fixed longingly upon the water.

The look in the man's eyes made Sidney forget his pain. With a noble smile he stretched out his arm and handed the bottle to the dying man, with the immortal words: "Soldier, thy need is greater than mine!"

Such was the glory of Sidney that the epitaph of one of his friends was in these words:

> Fulke Greville, Servant to Queen Elizabeth, Counsellor to King James, Friend to Sir Philip Sidney.

Another hero is famous for a deed somewhat similar. This is the generous

Rudolf of Hapsburg, whose descendants ruled over Austria, a kingdom made by his power. On one occasion Rudolf was with his army in a place where everyone was afflicted by terrible thirst. Somebody was able to find a cupful of water, which was brought to Rudolf as a great and priceless treasure. He took the prized cup in his hands, but exclaimed: "I cannot drink alone. All cannot share this little draught. I thirst not for myself but for my whole army." And, so saying, he tipped up the cup and emptied the water on the ground.

One more story we may give because it shows in some measure, but not fully, the Christlike spirit.

During the seventeenth-century wars between Denmark and Sweden a wounded Dane was about to raise a wooden bottle of water to his lips when a cry reached him from a wounded Swede.

The good Dane, using the words of our own Sidney, stumbled to the side of his enemy, and saying "Thy need is greater than mine," kneeled down and held the water to his lips. But the Swede, suddenly raising a pistol, fired and wounded the Dane in the shoulder.

"Rascal!" cried the twice-wounded soldier of Denmark. "I would have befriended you, and you would murder me! Now will I punish you. I would have given you the whole bottle, but now you shall have only half."

He raised the bottle to his lips, drank of it, and then gave it into the hand

that had tried to kill him.

### THE DOG THAT DID ITS DUTY

A COLLIE was once fastened to its kennel by so short a chain that it could move out only a few feet, and the kennel was in an open garden.

One bitter, wet night a female dog found her way from the street to the kennel, and evidently begged for shelter, for in the morning the collie was found outside his kennel, dying from cold, while the female dog, an entire stranger, was comfortably installed inside the kennel, with five newly-born puppies. The collie did not recover.

To match that pathetic incident we must turn to a snowy night in the life of James Hogg, the Ettrick shepherd poet. The snow was coming down heavily and the flocks were out, so the shepherd called up his faithful collie, talked to her as though she were a human being, and sent her off to search one side of the moors while he scoured the other.

### THE MAN WHO SAVED HIS SON

A FRENCH merchant named Labat was taken ill in the early years of the last century, and retired to a beautiful house on the banks of the River Adour.

Here, one morning, his gaze was attracted by a rider struggling with a restive horse on the opposite bank. The old merchant, who was wearing a dressinggown, peered across the distance and watched the battle between man and horse with anxious eyes. Suddenly he was horrified to see the rider hurled violently from the back of the plunging horse and thrown into the river.

She went her way and he went his; and late at night he returned, exhausted, bringing his share of the sheep. But there was no sign of the collie or her sheep, so he sat down in his cabin to await her arrival.

Hour after hour passed, and then came a low whine and a feeble scratching at the door. The poet rushed out. There was the collie's share of the sheep, every one of them safe and sound, and there was the collie, in her mouth a tiny puppy. She laid her baby at her master's feet, then disappeared into the night. Presently she returned, bringing another puppy.

Her babies had been born in the snow, yet she had done her duty, and not a sheep was missing. She brought the second of her babies to her master, placed it in his lap, looked pitifully into his face as if beseeching him to take care of it, and then lay down and died!

and then lay down and died!

The merchant never hesitated. He forgot his age and his own safety, and, hurrying down, dived in after the drowning stranger. Such is the call of Humanity.

He was a good swimmer, but the heavily-booted horseman was hard to save, and it was only after a terrible struggle that the merchant succeeded in bringing him safely to shore.

Then, with a cry which must have startled the morning echoes, the grand old merchant exclaimed fervently:

"Sacred Humanity, what do I not owe you? I have saved my son!"

## THE FABLES OF PILPAY

About five hundred years after Christ the Persian King Nushirwan sent one of his courtiers to India to obtain a book called The Fables of Pilpay. The fame of these stories was well known, but the Indians were jealous of their possession, and would not allow the fables to be turned into other languages. However, by stealth and bribery the courtier managed to obtain a copy. After this the fables were soon translated into every dialect of the East and many European languages. It is said that the Bible alone surpasses it in this particular. The general teaching of the fables is that Love is strength. The fables, in the original, are all linked together like the stories of the Arabian Nights. A king is warned in a dream to search for treasure in a certain place; he finds in a jewelled casket a piece of satin on which is written several wise proverbs. The proverbs are explained to the king in a series of fables by a wise old Brahmin called Pilpay. Another name for them is Kalilah and Dimnah.

#### THE FOX AND THE HEN

HUNGRY ox, spying a fine fat hen, made up his mind to eat her. as he was about to spring on her he heard a great noise, and, looking up, saw a drum hanging on a tree. As the wind blew the branches beat upon the drum.

"Ah!" said he. "A thing that can make so much noise must certainly have more flesh upon it than a miserable hen."

So, allowing the hen to escape, he sprang upon the drum; but when he tore the parchment open he found that there was nothing whatever inside.

"Wretched being that I am!" said he. "I have missed a meal for nothing."

By being too greedy we may miss everything that is worth having.

#### THE IRON-EATING RATS

MERCHANT once had to make a long journey, and first of all sold all his property and bought bars of iron, because he thought this the safest form of wealth. Moths could not devour them nor thieves run off with them. He asked a friend to lock them in his treasure chamber, and set off with an easy mind.

When the traveller returned he went to his friend, who met him with an air of

mingled insolence and hypocrisy.
"Oh, yes," he said, "I locked your iron up safely enough, but who can keep rats out with bolts and bars? Unfortunately they have eaten it all up!"

The traveller had trusted his friend, and had no proof to show that the iron had been left in his charge: it was useless to seek justice. He therefore said quietly that it was very unfortunate, and went his way.

On passing out of the house alone he saw one of his friend's children, whom he picked up and carried off without being seen.

That evening he met his friend rushing through the streets nearly mad with grief.

"My son is lost!" he cried.

"Well," said the traveller, "that must be the child I saw carried off by an owl. What a country this is, where a little bird can carry off a great child of five and rats eat bars of iron!"

At this his friend suddenly looked less

terrified, and greatly ashamed.

He went his way in silence, to give orders that the merchant's iron should be carried to his house and the child brought back.

Deceivers are usually as unsuccessful as they deserve to be.

#### THE THREE FISHES

THREE fishes lived in a pond. The first was wise, the second had a little sense, and the third was foolish. A fisherman saw the fish, and went for his net.

"I must get out of this pond at once," said the wise fish. And he threw himself into a little channel that led to a river.

The others did not trouble at all.

Presently the fisherman returned with his net, and stopped up the channel The second fish leading to the river. wished he had followed the example of the wise fish; but he soon thought of a plan to escape. He floated upside down. on the surface of the water, and the fisherman, thinking he was dead, did not trouble about him any more.

But the foolish fish was caught, and

taken home to be eaten.

We should all endeavour to be wise.

#### FOUR FRIENDS

THERE were once four good friends—a little goat, a tortoise, a rat, and a One morning the others were anxious because the goat did not meet them at the brook as usual. The raven flew up into the air, and presently came down with the news that their friend was entangled in a hunter's net.

"I'll gnaw through it," said the rat.
"I'll carry you there," said the raven.

Away they flew, and the last cord had been bitten when the tortoise toiled up.

"Oh, friend," cried the goat, "why did you come? The hunter may be here any moment, and how can you escape?"

The tortoise was about to say that she could not endure safety while her friend's life was in danger when, sure enough, the hunter arrived. The goat galloped off, the raven flew, the rat slipped into a hole, but the poor tortoise had not crawled two inches before the man picked her up and put her in a bag. He was very angry at what had happened, but he consoled himself with the thought that he had at least got something for the pot.

The three friends now met in a great state of misery, but the goat said: "Our tears will do the tortoise no good. We must act quickly. I have a plan by which we

may rescue our comrade."

The others heard and approved it. Soon after the hunter saw a little goat limp out from behind a clump of bushes. She went slowly and seemed an easy prey. Throwing down the bag, that he might run faster, the man set off in pursuit.

Several times the goat let him come quite close, and then, seeming to make a painful effort, escaped him. "It is only a matter of tiring her out," said the man; "I must have patience." So he was led

far from his bag.

Meanwhile the rat was gnawing the string that tied up its mouth. The tortoise was soon free, and then, with many exclamations of thankfulness and relief, she

crept into hiding under the bush.

When the goat thought that time enough had been given to accomplish the rat's task she suddenly set off for the hills at a canter. The hunter was amazed to see her lameness suddenly cured. When he returned to find the tortoise gone he gaped more than ever; then, thinking that he had been tricked by goblins, he hurried from the place and never harried the four friends again.

Love is strength.

#### THE MAN WHO WAITED TO BE FED

A RELIGIOUSLY minded man was once walking in a forest when he saw a falcon carrying food to a young raven, which he had taken under his protection.

"Åh," cried the man, "what a lesson is here! The goodness of Heaven is unbounded. The parents of this poor fledgling have met with some accident, but it is not allowed to starve. How greedy I am to run about searching for food instead of trusting to Providence!"

He decided to give up his time to prayer alone, and so betook himself to a cave, where he stayed, without food, for three days. However, no bird or beast came to

bring him anything to eat.

On the third night he had a dream, in which a voice said to him, "Son, the goodness of Heaven is unbounded, for it has given you the means with which to feed yourself. Therefore go to work and do Heaven's will. There was indeed a lesson in what you saw in the forest nest; imitate not the fledgling, but the merciful falcon who worked harder in order that he might have something to give to the needy."

God helps those who try to help themselves.

#### THE FALCON AND THE HEN

SAID a falcon to a hen, "How ungrateful you must be! You are fed with the best of food, you have a snug bed provided for you at night, you are protected from foxes, and yet, when the men who do all this for you want to take hold of you, you run away and do not return their caresses. Now, I do not receive anything like so many benefits, and yet I allow the men to hold me, and I serve them when they go hunting in the field."

"Ah!" said the hen. "What you say is true. But, remember, you never see a hawk roasting in front of the fire, whereas you see hundreds of good fat hens treated

in that way."

Circumstances alter cases.

#### THE KING WHO GREW KIND

A CRUEL king was riding one day when he saw a fox attack a hen. But just then a dog ran after the fox and bit his leg. The fox, however, lame as he was, managed to escape into his hole, and the dog ran off. A man who saw him threw a stone at the dog, and cracked his head; but at this moment a horse passing by ran against the man and trod on his foot. A minute later the horse's foot slipped on a stone, and his ankle was broken.

"Ah!" said the king. "This will be a lesson to me. I see that misfortunes always overtake those who ill-use others."

And from that time the king became a kind and wise ruler of his people.

Punishment sooner or later overtakes those who wrong others.

#### THE ADDER IN A BURNING BUSH

A MAN was once travelling with his camel through the desert when he saw a bush on fire, and heard a small voice crying from the midst of it imploring help and promising reward.

He dismounted, and saw an adder ringed in with flames. The man emptied his money from a small bag, which he fastened to his spear, and stretched it out through the flames. The adder jumped in, and

was borne out of danger.

"I want no thanks," said the man, as the snake crawled out, "but I think gratitude should make you promise never to hurt mankind again."

"On the contrary," returned the snake, " I intend to bite you and your camel. That is the way men return a good action."

"No, no!" cried the man, seeing the adder ready to strike with venomous fangs: "men return kindness for kindness. Only consult some witness, and I will abide by his judgment."

"Agreed," said the snake, and they

set off together.

The first creature they met was a cow, who replied to their question: "It is the custom to reward a kind action by a cruel All my life I have supplied my mistress with milk, butter, and cheese. She has sold my calves to the butcher, and is having me fatted for the same customer."

The snake gave the man a look, but he said, "One witness is not enough! The cow is prejudiced; let us ask another."

"Very well," said the snake, and asked the tree above for its opinion.

"Men always return evil for good," said the tree. "My race gives them fruit and shade from the sun, yet they cut us down and burn us."

"Are you satisfied now?" asked the

snake, with a triumphant smile.

"Give me one more chance!" pleaded the man, and the snake agreed, for he felt sure the answer would always be the same.

The next creature they met was a fox, to whom the adder briefly told the story, asking if his ingratitude were not customary and right.

The fox looked at him severely.

"It is not likely that I should give judgment in your favour," he said, "when you begin by telling a lie. Of course you could never have got into that little bag.'

"Don't trust me, trust your own eyes!" cried the adder. "Open the bag!"

In jumped the snake, the fox winked, and the man drew up the strings that fastened

the neck of the bag.
"My judgment," said the fox, "is that the man shall pound the ungrateful snake

to death with a large stone.'

Avoid the company of sly and vicious people, for they are never to be trusted.

## THE BRAVE DIVER OF TOR BAY

INE summer's day a torpedo-boat came to grief in Tor Bay, Devonshire, for her propeller shaft snapped and pierced her plating, so that the water rushed in.

Some other boats came to her aid, but she sank in about half an hour. The crew had taken to the boats, and there, 150 feet down, the boat remained until it was decided to send divers to examine her.

Two men, Sidney Leverett and Walter Trapnell, came forward, and one light evening they were taken out to where the

wrecked boat lay.

Trapnell was let down first, and he soon sent up a telephone message that he had found the wreck. He was told to note the damage and to signal when he could be drawn up.

But no signal came, and the full twenty minutes, beyond which time it is dangerous for a diver to stay down at such a depth, had passed. The men in the boat pulled the life-line, but all they felt was

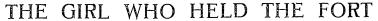
a heavy weight.

Sidney Leverett, recognising that something serious was the matter, sent down a message to ask what was wrong. Then, to his horror, he heard that Trapnell's lines were fouled, and he was unable to get clear. That meant that his friend was caught like a fly in a spider's web and could not get away from the wreck.

Without a moment's delay he slipped over the edge of the boat, and dropped down to the wreck. There he found his friend standing on the bottom, his lifeline and precious air-tube entangled in the wreck. He worked hard to free him.

Every instant's delay added danger, for Trapnell had used up all the air available to him, and if he could not be freed soon Leverett knew he would become unconscious and die. Every moment he himself was getting weaker and weaker, yet his friend's life depended on his quickness and skill. Once he felt it was hopeless to try any longer, but then he thought: "No, I cannot leave my mate. He must be saved." So he struggled on patiently.

At last he set Trapnell free. Leverett signalled, and sank into unconsciousness, while the men in the boat drew up the two divers very slowly, lest the rush of fresh, pure air should kill them both. When they were at last freed from their diver's dress Leverett slowly recovered, but his poor friend, for whom he had risked so much, died the next day.



THE history of the early French settlers in Canada provides us with many a story of courage and devotion. Foremost among those whose names have become famous for heroic deeds in those perilous times was Madeleine de Verchères, a girl of fourteen, who saved a fort.

The fort consisted of several houses surrounded by palisades, and a strong blockhouse. One day Madeleine was standing by the riverside, some distance from the fort, when she heard the cry: "Run, Mademoiselle, run! The Iroquois!"

She turned, and saw a band of Iroquois Indians. Swiftly she ran back to the fort.

Nearly all the people of the place were away in the fields when the attack was made, and were killed. There were left in the fort two soldiers, an old man, some women and children, and Madeleine's two brothers, boys of ten and twelve.

At the first sign of the danger the soldiers fled to hiding. As the Indians delayed their attack Madeleine went round to inspect the defences. In the blockhouse she found the two soldiers preparing to set light to the gunpowder and blow up the fort. Madeleine's courage shamed them, and they set themselves to defend the place. They and Madeleine's two brothers opened fire from the loopholes, while Madeleine fired a cannon as a

THE WOMAN WHO

NE day some poor children from the Southwark slums were being sent for a fortnight into the country, in connection with the Children's Holiday Fund.

It was a touching scene—the scramble into the carriages, the careful packing of bundles and baskets on the racks, elder sisters making babies comfortable in the corners, younger brothers clamouring to sit by the window, and all, great and small, telling excitedly what they would do and where they would go. '.

Walking up and down the platform, or gathered in knots about the doors, were the mothers-poor working women, who had snatched an hour from the factory or the wash-tub to see their dear ones off. Each child apparently had its parcel for the journey, and a copper or two to spend.

But there was one child who had neither. She sat on the edge of the carriage seat, her ... on her face nor a glad word on her lips. Her forlorn appearance attracted the attention of one of the women outside.

signal of distress. This signal was repeated from post to post till the warning of danger reached the city of Montreal.

Night came on, and had the Indians attacked them in the darkness all would have been lost. Madeleine ordered her elder brother and the soldiers to guard the women and children in the blockhouse while she posted her young brother, the old man, and herself as sentinels.

Throughout the dread night they passed the cry "All's well," and the Indians, finding the place so well guarded, refrained from attacking it.

For a week the Indians besieged the fort, but, not knowing how weak the defenders were, dared not attack it. At the end of the week, during which time Madeleine had scarcely rested, she was dozing with her gun under her arm when she heard the sentry cry that either Frenchmen or Indians were moving up the river. Help had come from Montreal!

The brave little leader marched to the river, and saluted the officer in command.

"Monsieur," she said, "I surrender my arms to you."

The relief was accomplished. Indians had fled. Madeleine could now rest secure. The news of her bravery spread far and wide, and her heroism was rewarded by a pension.

## SOLD HER SHAWL

The sad, white face of the little girl smote this good woman to the heart. Where was the child's mother, she asked, and had she no brothers or sisters, no pocket-money, no food? The child shook her head. Father was dead, Mother could not leave her work, she had no brothers or sisters. A companion had brought her to the station.

By this time several people had gathered round, and many were the expressions of pity and concern. But our good woman, whose shabby skirt and shawl proclaimed her poverty, dashed away a tear and saying, "Wait a minute," hurried off.

The guard was about to blow his whistle when the woman returned, rushing along the platform in search of the lonely child. In her hands were some pennies and a big bun.

"Hurry up!" cried the guard; and the wistful eyes wide open, but neither a smile woman was just in time to put her gifts in the child's hands before the train steamed away. She had sold the shawl from her own ill-clad shoulders.

## THE NOBLE ALCESTIS

In the old simple days of shepherd kings a prince of Thessaly called Admetus met a handsome stranger on the plain. It was Apollo, who had been banished from Heaven, but he saluted the mortal with humility, and asked for work.

Admetus needed a shepherd, so for many years afterwards the god of light and music and poetry kept the king's flocks. Admetus was a good master, indeed he was the friend rather than the tyrant of his servants, so that Apollo grew to love him. When Jove's anger had passed, and Apollo was recalled from exile, the Sun god sought to do Admetus a service. He journeyed to the great cavern where the Parcae, or the three Fates, were spinning human lives.

These three aged sisters, clad in white and crowned with narcissus, presided over human birth and death. Clotho, who held a distaff, was the Fate who directed whether a man should be born in palace or hovel, Lachesis spun out the actions of his life on her spindle, while Atropos cut the thread with her great shears when she decided that his hour for death had come. They were inexorable, and even Jove, king of heaven, could not intervene when they cut the life-thread of a hero he loved.

But the beautiful Apollo, with his music and sweet voice, softened their hearts, and persuaded them to promise not to cut the thread of Admetus's life, on one condition: when Death came for him some friend must be willing to die in his stead.

The news was brought to the shepherd king by a soothsayer. Perhaps he smiled and said, "Then I shall not live longer than other men. Who, except in the heat of battle, would go down to the dark realm of King Pluto that his friend might live on in the light of the Sun?"

A little later Prince Jason set out in the good ship Argo to recapture the Golden Fleece. Among the heroes who went with him was Admetus. He bore himself bravely, but this is not the place to tell again their adventures. It suffices to say that he returned in safety.

Jason brought home with him the beautiful witch Medea as his wife. Now, Jason had been unjustly deprived of his kingdom by old King Pelias, but on his return he stayed at the usurper's court, and all seemed friendship. Pelias was an old, sickly man. One day his four daughters were telling Medea how it saddened them to see his weakness. The

witch said she could renew his youth by magic. First, however, she would prove her powers to the eager girls.

She got an old ram, had it killed, and put the body in a huge cauldron. She threw strange herbs into the pot, and chanted weird ditties. By and by she lifted out a young, playful lamb.

"I can turn your father into a radiant youth," she said, "but it requires courage

and secrecy."

The daughters were so anxious to renew the old man's life that they made a slave stab him that night. But when he was dead Medea only laughed at them, and refused to use her magic to restore him. In vain were all their cries and tears. Their father was dead, and they had slain him. The miserable girls were driven into exile as murderers.

But Admetus believed their innocence, and offered them shelter in his Court. One of them, called Alcestis, became his wife. After time had dimmed the tragedy in her memory they were happier than most kings and queens have ever been.

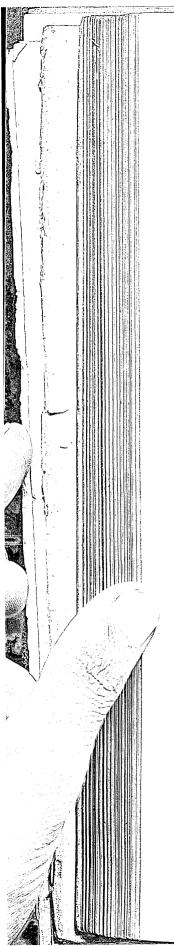
At length Admetus was stricken down by a deadly fever that no physician could cure. Alcestis watched by his side day and night, for she had heard the prophecy.

One night, as she watched by torchlight, Alcestis saw Death approach. He was a tall, grave man, clad in black. Alcestis felt no fear as he glided from the doorway to the bedside. She rose and said, "Take my life for his!"

Death held out his hand; she took it without lament, and he led her down to the sunless world where King Pluto ruled with his fair wife Proserpine, and heroes wandered on the banks of the Styx. For, to the loving Alcestis, the upper world without her husband would have been as dismal as this grey country.

Admetus began to grow well from the moment that his wife spoke her noble words. All Greece joined with him in celebrating the lovely memory of Alcestis. She was the pattern of womanhood, the most fragrant name in history.

But they say that the king found life as heavy as death without her, and that Hercules, pitying his grief, went to the under-world. The hero offered to wrestle with Death if Alcestis should be the prize. After a desperate tussle Hercules triumphed, and brought Alcestis back to Thessaly. Surely when Death came again the two followed that dark messenger hand in hand.



## ARACHNE AND HER TAPESTRIES

In all Colophon there was no needlewoman so skilful as Arachne, daughter of Idmon the dyer. Her tapestries were masterpieces of beauty. Great and small flocked to see her at work. The townsfolk boasted of their clever citizen, saying, "There is not such another in the world."

Arachne grew dizzy with such praise. In her conceit she said: "Truly, I am ready to challenge all needle-workers to a contest, from Minerva downward."

As she spoke an old woman, a stranger, who stood in the crowd of admiring neighbours said gently: "Child, such talk is rash and irreverent. Mortals cannot hope to rival the gods."

Arachne tossed her head and exclaimed: "I would say it to Minerva herself!"

"She is here," said the old woman, suddenly growing upright, young, and beautiful. "She accepts your challenge."

Arachne was not frightened, but only made more proud than ever because a goddess had descended from heaven to meet her. Arachne's vanity made her feel sure of victory, for she was certainly the finest worker that ever depicted heroes and queens, woods and seas, with a needle. But she was not a goddess.

"Let us begin now," she cried. "Here are two looms, and thread enough for a mile of tapestries."

Long they worked in silence. Arachne chose as her subject a group of incidents showing the gods at fault—for in Greek Legend the gods were subject to the weaknesses of man, though they were immortal. It was indeed a beautiful picture, and in every way perfect as mortal could make it. But when the neighbours who praised it turned to Minerva's work, which showed her battle with Neptune, everyone cried out in astonishment. The sea looked so real that women drew back for fear of being wetted by the spray, and the needlework people were so lifelike that a child ran screaming from their warlike attitude.

Arachne could not be blind to the difference. She fled from the humiliating sight of her work hung by Minerva's. Then, because pride was the very breath of life to her, and she could not bear to live without it, she hanged herself. But Minerva, pitying her foolish rival, turned her into a spider hanging on the end of its thread.

The descendants of that first spider still go by the family name of Arachnidae, and are famous for their spinning.

## THE PRINCE WHO BECAME A GRASSHOPPER

Never be cruel to a grasshopper. It might be a prince, as you shall hear. Laomedon, first king of Troy, had a handsome son called Tithonus. The boy's mother was a daughter of the River Scamander, but history does not tell us whether the water-baby was found among the reeds or discovered in a giant lily. However it was that she came to live among men, she was beautiful as the famous river, and her son took after her.

Tithonus was fond of hunting, and was often abroad before the stars had faded from the sky. So Aurora, the dawn goddess, grew to know and love him. One dewy morning she appeared to him suddenly in her rose-coloured gown and her wreath of sunbeams. Tithonus fell in love with her, as the shepherd prince Endymion had fallen in love with the Moon goddess. After that there was only one part of the day he cared for; it was the brief, lovely moment when Dawn came to Earth.

But at length a cloud spread over his happiness. It was the thought that death must one day part him from his immortal lady. He begged her to ask this boon of the king of the gods, that he should live for ever. After much supplication by Aurora Zeus granted her request, and the unchangeable decree went forth that Tithonus should never die.

Years sped quickly, and Tithonus began to get wrinkled, grey, and stiff. He had asked eternal life and not eternal youth from the gods. He was no longer the handsome lover of the Dawn; but they remained faithful friends. Tithonus enjoyed the wise pleasures of middle age.

Alas! middle age could not last for ever. Hundreds of years passed, and Tithonus was a helpless old weakling whose life was a burden to him. One day, with tears running from his sightless eyes, he begged Aurora to reverse the decree and let him die. But the word of the king of the gods could not be altered.

Yet Aurora gained permission to change the old man's form. He became a lively grasshopper, leaping and singing among the thyme flowers.

Somewhere he must be chirping still. It behoves us to be very careful where we tread when we walk in the fields.

## DAEDALUS AND HIS SON ICARUS

DAEDALUS was an Athenian inventor who gave the world the wedge, the axe, and sails. He made, besides these useful things, many cunning toys, such as statues which moved by themselves.

He had not, alas, that greatness of heart which should have gone with such cleverness of mind. When he saw that his nephew Talus showed signs of the same genius Daedalus gave himself up to the vilest jealousy. One day, as the boy watched his uncle at work, a sudden rage seized Daedalus, and he hurled the boy down to the courtyard below. Talus was killed instantly.

Daedalus fled from justice with his son Icarus. They came to Crete, where King Minos sent for Daedalus, and employed him at the Court in various ways. He made the famous labyrinth in which Theseus afterwards fought the bull-headed man who then dwelled there and devoured human beings. But when his work was finished Daedalus and his son were imprisoned by the treacherous king.

Young Icarus despaired, but Daedalus the ingenious contrived a way of escape.

With wax and feathers he made two huge pairs of wings. One day the two captives strapped them on, and sailed over the prison walls and the sentinels, away to freedom.

The delight of Icarus in his new power was boundless. He soared and swooped instead of flying steadily as his father bade him. Now he wanted to see how high he could ascend. Up and up he climbed, till the hot Sun melted the wax, and his strong pinions were destroyed.

He dropped like a stone in the ocean, and was drowned. That part was called

the Icarian Sea after him.

Now Daedalus felt the same anguish as the father of Talus. Helplessly he flew round and round over his beloved son's blue grave, and then he winged his

mournful way to Sicily.

Here for a while his talents brought him favour and money, but his story soon became known. King Minos was angry with the King of Sicily for harbouring the runaway. Fearing a war, the Sicilian had Daedalus executed. This time the inventor did not try to escape. Life was not sweet to him without Icarus.

### SITS-BY-THE-DOOR

English children all know the story of Una and the Lion. Red Indian children have a legend very like it. Here it is.

ONCE upon a time there was a beautiful girl, who belonged to the Blackfoot tribe, called Sits-by-the-door. She was her parents' darling, and had many friends. Her heart was filled with gratitude to the Great Spirit for the beauty of the Earth and the love of her fellows.

But one day the tribe changed camp. First went a party of warriors in single file, then came the women and children, and more warriors brought up the rear. Suddenly a party of Crow Indians sprang out upon the middle of the line. They seized many women and children, while their comrades shot down the first Blackfoot warriors who sprang to the rescue. Then they made off swiftly with the captives. Sits-by-the-door was among them.

It was a long, painful journey to the Crow camp by Yellowstone River, and at every step the poor prisoners thought of the terrors before them. When they arrived some were burned, while others were made slaves.

Sits-by-the-door was given to a cruel man who ill-used her brutally. Every night he tied her wrists and ankles together lest she should escape. But his old wife was kind to the slave in secret.

One day when the Indian was hunting she told Sits-by-the-door that her husband had decided to kill her.

"If he spares you till tonight," she said,

"I will help you to escape."

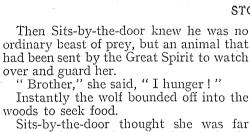
The Indian came in weary, gulped his supper, and fell asleep. The old woman cautiously untied the ropes. Then she gave Sits-by-the-door a flint, a bag of pemmican, and a pair of moccasins.

The poor girl sped out. All night she ran through the woods, and merciful Heaven sent snow to cover her tracks. Through the day she had to lie hidden,

but at dusk she set off again.

Days passed; her moccasins were in ribbons and her store of pemmican was exhausted. Soon she began to weaken from hunger, and could only totter a little way at a time. All at once she heard a noise behind her; a great grey wolf was swiftly following her!

Sits-by-the-door began to run, but she was too exhausted to go far, and at last she dropped down in despair. She expected to feel the wolf spring on her shoulders, but nothing happened. She looked up. He lay at her feet like a dog.



Sits-by-the-door thought she was far enough from the Crows to light a fire in safety, so she gathered brushwood and kindled a flame with the flint; then she lay down to wait.

Before long the wolf returned with a little dead fawn. Sits-by-the-door cooked it, and shared it with the wolf. From the skin she made moccasins for her torn feet. She slept fearlessly, guarded faithfully by her strange friend.

In this manner the two travelled together for several days, till at last they

reached the Blackfoot camp.

It is impossible to imagine the joy of the girl's parents at seeing her again, for they thought she must have perished by fire and torture.

Sits-by-the-door was worn out by the long journey and the excitement of her homecoming. She bade her kinsmen be kind to her friend the wolf; but that night she fell ill, and while her parents were busy tending her the Indian dogs attacked it, and drove it out of the village.

Every evening for some time it would come to a hill overlooking the camp and howl. The girl's friends brought it meat, but it ran away from them. It wanted Sits-by-the-door, who was too ill to come. At last it came no more.

Sits-by-the-door recovered, and lived a long, happy life. Perhaps it was in honour of her friend that Indians started to call the Milky Way the Wolf Trail.

### THE POACHER'S SILENCE

Some thirty years ago a gamekeeper was killed in the east of England, and two poachers were arrested for the crime and brought to trial.

There was no difficulty as to which of the poachers was the guilty party. One of the men confessed that he and he alone had done the horrible deed. But for some reason or another there was a general feeling that he was innocent, and the trial excited a great deal of interest in the neighbourhood.

When the verdict was given, and the judge had pronounced sentence of death, the friends of the prisoner bestirred themselves, and, raising the plea that he suffered from a deformity of the neck which would make it a torture to hang him, they suc-

ceeded in getting a respite.

But after the respite had been granted the law ordered a medical examination of the prisoner, and none of the doctors could find any reason why he should not meet the punishment for the crime he had committed. He was, therefore, for the second time, condemned to die.

But the people in his part of the world were utterly unconvinced that he was guilty, and immediately set about getting up fresh petitions for his reprieve. So numerous and so earnest were these petitions that the law again granted a respite, and the poacher was sentenced to penal servitude for life.

Think what those words "penal servitude for life" mean. They mean that a

man ceases to be a man, and becomes a number; that every tomorrow has the same soul-killing monotony as yesterday; that no friend may come near him; and that the life of the world is shut out from him by frowning walls.

Perhaps this poacher many times wished that the law had put him to death, for he lay in prison day after day, week after week, month after month, for nearly thirty years. Then he was released. He went into prison a strong and vigorous man, with dark hair, bright eyes, and ruddy skin; he came out white and bowed, and marked for ever with the grey pallor of the prison cell.

And when he came out and found that his fellow-poacher was dead the true story of the crime was told. It was not he, but his fellow-poacher, who had killed the keeper—struck him down with the butt of a gun, and thrown the body into a pond. He himself had had no hand in the crime. But why did he take upon

himself the guilt?

The answer shows us that even in bad men there is a spark of goodness. This rough English poacher held his peace because the real murderer was a married man with a wife and children dependent on him for support. He himself was unmarried and had no dependents.

And so, for the sake of the other man's wife and children, this simple, rough-hearted poacher did what he could, and

willingly offered his life.

## KING ARTHUR AND HIS KNIGHTS

The tale of King Arthur should be as dear to us as the hills of home. Hector, Siegfried, and Roiand are foreigners, but Arthur is our own English hero, whose story has been told in the inglenook to generation after generation of English children. It has coloured their dreams and games, shaped their ideas of courage and faithfulness, become part of their characters; and so it has influenced history. When Caxton printed the story in one of the first English books the good craftsman owned that "divers men hold opinion that there was no such Arthur." Historians incline to believe that the legend sprang from the true story of a Celtic chieftain of the fifth or sixth century, who beat off Saxon invaders and made many other British kings his vassals. Round his memory a wonderful group of fables grew up, and when the British were conquered by the Saxons this story became their great comfort. They handed it down like an heirloom. In time it was arrayed in all the trappings of fourteenth-century chivalry, and bedizened with magic jewels. In that form it was written down about 1469 by Sir Thomas Malory, for the pleasure of Edward the Fourth and all lovers of romance after him.

#### THE COMING OF ARTHUR

When King Uther Pendragon was at war there appeared in his capital a ragged man called Merlin, who soon convinced the King of his magic powers. Through the wizard's counsel the King overthrew his enemies and obtained the hand of Igraine, Duchess of Tintagil. Merlin served the king on condition that the heir to the throne should be given him, unchristened, to bring up.

When a son was born King Uther told his servants to carry it to the beggar man at the gate. Merlin took the babe to a knight called Sir Ector, who was richer in honesty than in this world's goods, and bade him bring up the prince as his son, calling him Arthur.

So the boy grew up far from the flatteries and pomps of a court, submissive to the good knight and his son Kaye, whom Arthur took for his elder brother.

Some fifteen years passed, and King Uther died. Many of his barons desired to seize the throne, and the land seemed on the eve of civil war, when lo, there appeared a miracle! In the churchyard of the greatest church in London a mighty stone was found with an anvil on it, and a sword embedded in the anvil. On the sword were inscribed the following words: "Whoso pulleth out this sword is rightful King of England."

All the lords of the land gathered to the place, and strove in vain to pull out the sword. They encamped near by, and held tournaments to pass the time till one of their number should succeed in plucking it from its resting-place.

Sir Ector came to London, and brought his sons. One day as they rode out to the jousts Kaye discovered that he had left his sword at home. Arthur offered to return and fetch it. But the house where they lodged was locked, for everyone had gone to the tournament. Arthur determined that his brother should not be

disappointed in the tournament for lack of a weapon. He remembered hearing of the sword in the churchyard. Arthur hurried thither, drew it out easily, and carried it to Kaye.

When Kaye saw what was written on it he went to his father and said, "I must be rightful King of England." His father led him to a church, and made him swear on the altar to tell the truth. Then Kaye owned that it was Arthur who had given him the sword.

Sir Ector knew the time had come to tell the prince who he was. Arthur's first thought was one of grief because those he had loved as father and mother were not his true parents. Next he vowed that he would rule justly, and make Kaye Seneschal over all his lands.

As first the barons refused to accept the boy as their king. The sword was put back in the anvil, and once more no one could pull it out save Arthur. For a year pretexts of delay were made, but at last the boy was crowned amid the acclamations of the common folk.

#### **EXCALIBUR**

MERLIN became Arthur's counsellor. One day the wizard took the young king to a lake. A boat was moored to the bank. Suddenly in the midst of the lake an arm appeared holding a scabbarded sword. Then a maiden rose from the waters near by. Arthur called to her, "O Lady of the Lake! If that sword be yours I pray you give it to me, and I will give you treasure in return."

"Take the sword, King," said the Lady.
"I will ask my gift in my own time."

She sank beneath the waves. Arthur rowed out to the midst of the lake, and the hand yielded up the sword to him. Merlin told him that the sword was called Excalibur, and in battle it would shine like fire, dazzling the enemy. The scabbard was as wonderful as the sword, for it

would save its wearer from losing blood, however terrible his wounds might be.

With the aid of these weapons Arthur conquered Scotland, Ireland, Gaul, Norway, and Muscovy. He ruled England

justly, righting the wrongs of the poor, and giving the realm peace. No crown was more glorious than his in all Christendom. His fame spread far and wide, so that his enemies began to plot his ruin.

#### THE ROUND TABLE

THE most beautiful lady in the world was said in those days to be Guinevere, daughter of the King of Cameliard. Arthur sent Lancelot, most renowned and most courtly of his knights, to offer her the crown of an English Queen. Her father was proud that his daughter should be consort to the heroic King Arthur, so Guinevere was forced to leave her home and follow Lancelot into a strange land. On the journey he was so kind, and cheered the exile so gently, that she grew to love him. Lancelot loved her also, but he held his peace, thinking he loved her in vain. So she was wedded to King Arthur amid great rejoicings. Because he had done his embassy so well Lancelot was appointed the Queen's champion, bound to take her part in any quarrel, and guard her life.

Guinevere's father had sent Arthur a great round table, at which a hundred and fifty knights could feast together. The King vowed that only the worthiest knights should have a seat at it. There was no higher honour in the land than to be one of the Knights of the Round Table. Wealth or lineage could not obtain a place there without worth.

When anyone was oppressed by tyrant or witch he would send to King Arthur for help, and one of the Knights of the Round Table would ride to the rescue. Their adventures fill many books. Here we can only name some of the most famous of the knights.

Gareth came disguised to the Court, and lived there in the kitchen, taunted by Kaye, but kindly treated by the King's nephew Gawain and by Lancelot, who pitied him. At last came the boy's chance to prove his mettle. A lady arrived seeking help against her enemies, and the scullion claimed the boon of helping her. She was angry, and loaded him with

insults, but he followed her in spite of all she could say, overpowered her enemies, and then, when he had won glory, revealed himself as Arthur's nephew, son of the King of the Orkneys.

Geraint the Knight Errant wedded Enid, whose father was a poor knight. Suspecting her of a wrong she had not done, Geraint made her suffer cruelly, but in the end he discovered her innocence.

Tristram, nephew of King Mark of Cornwall, fell in love with Iseult of Ireland. When he told his uncle of her beauty King Mark determined to marry her himself. The King of Ireland consented. Tristram went, broken-hearted, to live in exile. He married Iseult of Brittany. After many years he fell ill, and a soothsayer declared that he could only be cured by Iseult, Queen of Ireland, who was a skilful physician. Tristram sent a messenger to Cornwall, bidding him hoist white sails on his return if he were successful. Iseult of Ireland hastened to save his life, but Tristram's wife was jealous, and told the sick man that she saw the vessel returning with black sails. At this news Tristram gave up hope, and died.

Lancelot was invincible in war and tourney, but he loved the world too well to be a peerless knight like young Galahad, whose name has stood for manly purity ever since those days. All men were eager to be Lancelot's friends. Many maids loved him in vain, and Elaine of Astolat, at whose father's castle he had lodged awhile, died of grief when he returned to Court. Her dead body was laid on a barge, which drifted down to Camelot.

The stories of these men and their companions have been retold by many poets, from the far-off days of wandering minstrels to the days of Tennyson, Matthew Arnold, and Thomas Hardy.

## THE QUEST OF THE HOLY GRAIL

On the eve of Pentecost, as the knights of the Round Table were at supper, a crashing like thunder shook the roof. Then a sunbeam, brighter than anything in the world, entered the hall, and in it floated a cup. By its glory they knew it for the cup our Lord used at the Last Supper, called the Holy Grail. The air was filled with sweet scents, and a great peace stole into men's hearts.

Suddenly the Grail vanished. King Arthur thanked Heaven that he and his

#### KING ARTHUR AND HIS KNIGHTS

knights had been vouchsafed this vision. "Amen!" cried Sir Gawain, Arthur's nephew, called the Courteous. Then he vowed to set out to seek the Grail on the morrow. If after a year and a day he could not see it he would know that the Quest was not for him. All the other knights vowed the same thing, and King Arthur was filled with sorrow, for he feared many would not return. And so it was.

The brave men rode far and wide, meeting with strange adventures, but faring for the most part like Lancelot. He one day came on a tournament between two companies of knights, one mounted all on black horses and the other on white. The black seemed the weaker side, so Lancelot joined with them, confident of bringing victory by his prowess. But he was overborne, and stunned. Some men carried him aside into a wood, where they left him. When he recovered Lancelot was filled with shame at his defeat. He mounted his horse painfully, and rode away. Soon he met a nun. "Ah. Lancelot," she said, "you are without peer among earthly knights, but in heavenly adventures you have been worsted. The tournament was a parable. The white knights battled for holiness, the black for sin and pride. You chose the worldly side. Beware of everlasting pain."

Then Lancelot's shame was greater than ever, and, deeming himself unworthy of the Quest, he returned to Camelot.

News came of the death of many knights, but none knew what had become of Sir Percivale, Sir Bors, and Sir Galahad. More than three years passed, and then Sir Bors returned with a marvellous tale.

The three lost knights, though they had set out separately, were led together by many strange signs. They wandered on, encountering many perils, till they came to the sea, and there they found an empty ship, with an altar on it, and the Holy Grail shining through a veil. They fell down and worshipped it.

The vessel sailed away of its own accord to Sarras. They went ashore, carrying their holy treasure. The king of the place seized the Grail, and flung the knights into a dungeon, where they lay for six months, comforted by visions. Then the king fell sick and died. He had no heir. While his counsellors debated who should be king a mysterious voice bade them choose the youngest of the captive knights. So Galahad became king, and righted all the wrongs in that land.

A year after his crowning he wakened his two friends with a shining look on his face, telling them to haste with him to the room where the Grail was kept. They saw a great company of angels about it. Galahad held up his hands to heaven crying, "Now, blessed Lord, there is such joy in my heart I would live no more on Earth if it be Thy will."

His companions saw the whole flock of angels take flight, with the likeness of Galahad in their midst. When they looked down the Grail had vanished, and Galahad's bedy lay dood.

Galahad's body lay dead.

## THE TREACHERY OF VIVIEN AND MORGAN LE FAY

MERLIN the wise counsellor fell in love like any foolish boy. His lady was called Vivien, and she is said to have been not mortal, but the child of a lake. She pretended to love Merlin, till she had learned all his magic arts. Then she told him of great treasure lying in an underground cave, and begged him to get it for her. No sooner had he descended than she, by strong enchantments, sealed up the mouth with a great boulder, so that Merlin was imprisoned for ever more.

Arthur had a sister called Morgan Le Fay, who practised magic. She was angry with Arthur, who had slain her lover, and she determined to steal Excalibur. She never found an opportunity for that, but she managed to unbuckle the magical scabbard, and flung it into a deep lake.

Now Arthur was no longer proof against wounds; he had lost his wise counsellor, and many of his knights had perished in the Quest of the Grail. Shadows gathered over the sunlight of his reign.

## THE PASSING OF ARTHUR

MORDRED, one of the king's nephews, was an evil man, jealous of Lancelot's prowess and the King's splendour. He spread abroad a lie that the Queen was a wicked woman, and so cunningly did he contrive that she was condemned to be

burned to death. King Arthur could not alter the course of justice; lover or stranger, queen or scullion, must suffer the same punishment.

Lancelot was away, but the tidings reached him. He galloped up with a

company of knights as the Queen was led to death, struck down her guards, and carried her off to a strong castle. In the encounter he had, though quite unknowingly, killed Sir Gareth.

The Pope sent a letter to King Arthur telling him to take back his Queen, who was innocent. Guinevere returned to Court, but Lancelot was banished because he had slain Sir Gareth. Gawain, Gareth's brother, would not permit Arthur to make peace with him. Lancelot went beyond the seas, and many of his friends went with him.

Then Mordred gathered all his followers together and rebelled against Arthur. He was twice defeated in battle, but rallied again. Gawain got his death stroke in the first fight. He lived long enough to write to Lancelot making peace with him, telling of Mordred's treachery, and asking Lancelot to come to the King's aid. Many who should have aided Arthur stood aside because they were indignant at Lancelot's banishment. Before Lancelot could get Gawain's message, however, a third battle took place.

So terrible was this fight that at dusk Arthur and two brothers, Lucan and Bedivere, were all that was left of the two hosts. Arthur had killed Mordred, but the stricken traitor had gathered his strength for a blow which had cleft the King's helmet, and given him a frightful wound. Lucan and Bedivere carried the King to a little deserted chapel near by, and there Lucan fell dead of his wounds.

Arthur lamented the death of his good knights, saying, "Were I to live after them my life would only be sorrow. Weep not,

### THE END OF

UINEVERE became a nun at Almesbury, and spent six sad years praying for the King's soul.

When Lancelot returned to England and found all that had befallen he remembered what Galahad had said of this unstable world. He became a hermit, and seven others who had been his comrades in arms joined him in a life of humility and prayer. One night he had a vision bidding him and his companions go to Almesbury. He obeyed the vision, and on arrival two days later learned that Guinevere had been dead half an hour. The hermit knights bore her body back to Glastonbury, where they buried her.

Bedivere, but take my sword Excalibur and throw it into the lake near by."

Bedivere took the sword, but its hilt was gorgeous with jewels, and its blade was famous through the world. He had not the heart to throw it into the dark lake. Justifying his action to himself, he hid it and returned to the King. Arthur asked what he had seen.
"Sir," answered Bedivere, "I saw

nothing but the wind and the waves.'

"You have not dealt truly with me," said the King, reproachfully. "Go, do a dving man's behest."

Bedivere went, but again he disobeyed, and then Arthur was moved to wrath and cried, "Ah, traitor, you care more for the sword than your king!"

At that Bedivere ran out, seized the sword quickly, and hurled it far into the lake. Before it fell an arm, "clothed in white samite, mystic, wonderful," came out of the water. It caught the sword and brandished it before both disappeared beneath the waves.

When Arthur heard that he told Bedivere to help him to the lake, and when he had done so the knight marvelled to see before him a barge, containing many fair ladies robed in black.

"Lay me in the barge," said the King. The ladies received him with loud lamentations. Then they rowed him away, and left Bedivere standing on the margin of the lake, alone and desolate.

So ends the tragic story of the King's last desperate fight against overwhelming odds. Some say that Arthur sleeps in a flowery land, whose entrance is a cave in the Welsh hills, and that he will return to his people in their sorest need.

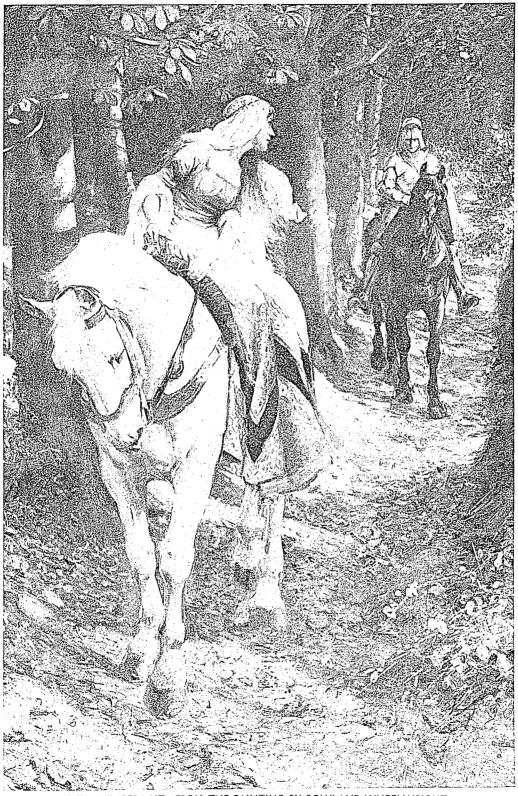
#### THE KNIGHTS

A little while after Lancelot fell sick. One morning Sir Bors found him dead on his bed, and the smile on his countenance was like the smile of Galahad.

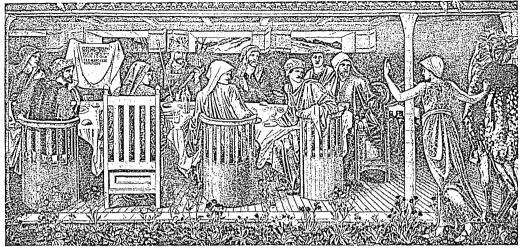
Old Sir Ector, who had seen the beginning and end of Arthur's glory, came to the burying. He looked at the dead man, whose face, according to custom, was uncovered, and said: "Ah, Lancelot, thou wert the courtliest knight that ever drew sword, and the faithfullest friend that ever bestrode a horse. Thou wert the head of all Christian Knights."

With the old man's words the story of King Arthur and the Knights of the Round: Table was fitly finished.

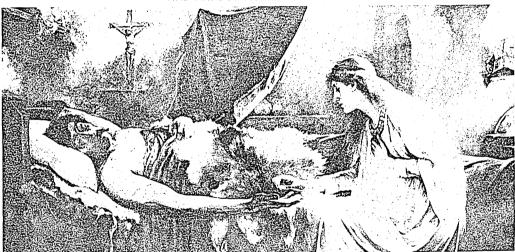
# KING ARTHUR AND HIS KNIGHTS



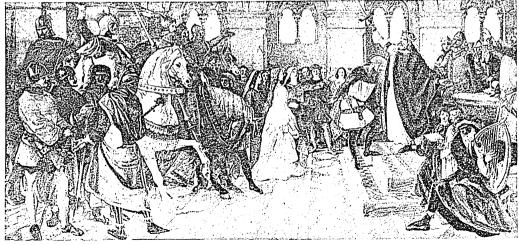
enid and geraint—from the painting by rowland wheelwright  $6945\,$ 



THE KNIGHTS OF KING ARTHUR—FROM A TAPESTRY DESIGNED BY SIR EDWARD BURNE-JONES
AND MADE BY MORRIS & COMPANY



LANCELOT AND ELAINE OF ASTOLAT—FROM THE PAINTING BY SIDNEY PAGET



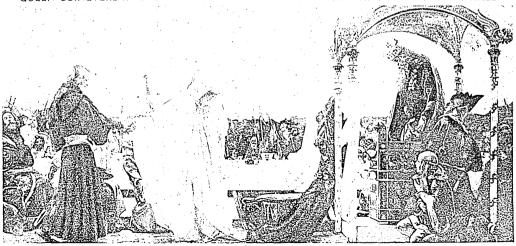
SIR TRISTRAM IS ADMITTED AS A KNIGHT OF THE ROUND TABLE-FROM A FRESCO IN THE KING'S ROBING-ROOM IN THE PALACE OF WESTMINSTER



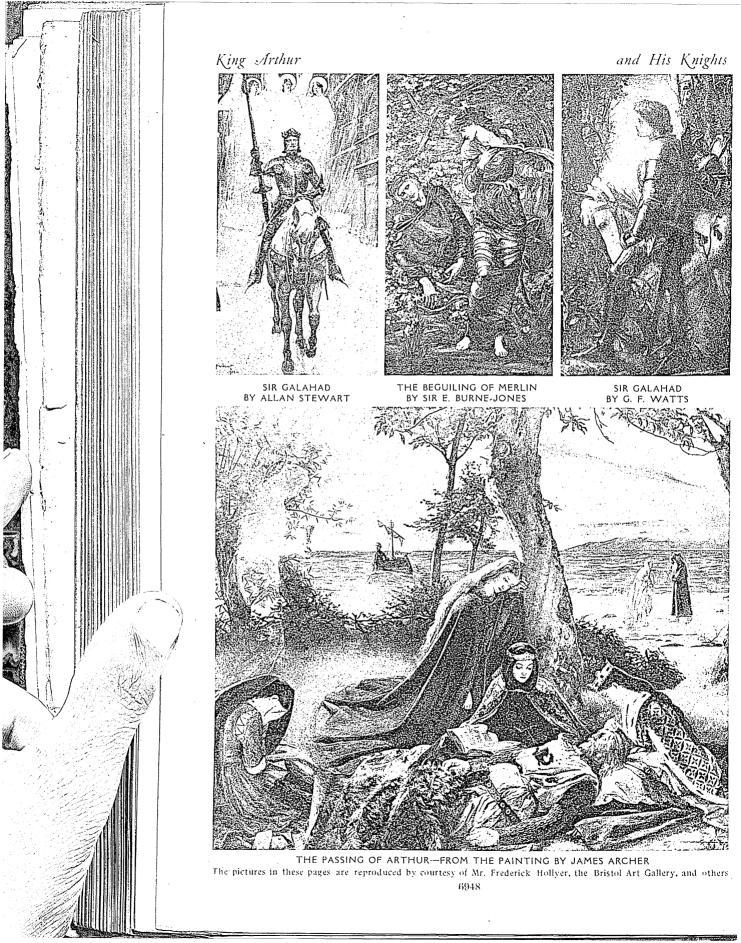
KING ARTHUR IN AVALON-FROM THE PAINTING BY SIR EDWARD BURNE-JONES



OUFFN GUINEVERE IN THE NUNNERY GARDEN—FROM THE PAINTING BY MARY F. RAPHAEL



THE VISION OF THE HOLY GRAIL—FROM THE PAINTING BY EDWIN A. ABBEY Reproduced from a Copley print by courtesy of Messrs. Curtis & Cameron 6947



## A FELLOW BY THE NAME OF ROWAN

WHEN war broke out between America and Spain in 1898 the first thing for America to do was to send a message from the President of the United States to the leader of the insurgents in Cuba. This leader, Garcia by name, had to be reached at all costs and told what America meant to do. It was also necessary to know definitely that he would fight on the side of America against Spain.

But could he be reached? Where was Garcia? He was somewhere in the wild mountains of war-stricken Cuba—somewhere, miles from cities, miles from postmen and telegraph boys, miles from everything. How could the President of the

United States reach him?

With all the vast wealth and power at his disposal, the great President was helpless. He could not say to Garcia: "Helpme, and I will help you." He could not say so simple a thing as that, although he was surrounded by telegraph and telephone wires, and had thousands of men to obey his commands.

But someone came to him and said: "There's a fellow by the name of Rowan

who will find Garcia for you."

This fellow Rowan was summoned into the President's presence. He was asked if he could find Garcia. He said he would try. The President liked the look of the man, liked his way of speaking, and gave him a letter for Garcia.

Rowan took the letter and placed it in an oilskin pouch, which he strapped round his waist, next to the skin. Then he walked out and disappeared. In four days an open boat crept toward the coast of Cuba under the blackness of a midnight sky. The boat was shot forward on a wave, it grounded on the beach, and before a second wave reached it a fellow by the name of Rowan was walking up the shingle to the cliffs.

Three weeks passed away rapidly. At the end of that time a man appeared on the opposite side of the island, entered a boat, and was rowed away. He had walked from shore to shore, evading a thousand dangers in a land hostile to his race and country, and he had found Garcia.

Thus appeared for a brief moment on the stage of history a fellow by the name of Rowan; and as silently as he appeared he disappeared again into the darkness and the silence, the hero of a flashing moment. All he told of his adventure was in these few simple words:

April 23. I received the cipher cable despatch "Join Garcia as soon as possible." At 10 a.m., dressed as an English hunter, I crossed Jamaica, and reached St. Ann's Bay at 1 a.m.

Boarded small sailboat, and by daylight entered the Caribbean Sea, kept well off the Cuban coast until dark, then landed about 11 p.m. Next morning proceeded through forest.

About noon, May 1, reached insurgents' headquarters. Conferred with Garcia, and arranged to be accompanied back by envoys with information.

Crossed the island of Cuba astride meridian 77 degrees, and reached coast about sunset May 5. Passed under guns of Spanish fort at 11 p.m., and by daylight was out of sight of Cuba on our way to Key West.

That is how Lieutenant Rowan described his journey through Spanish patrol vessels and the Spanish lines, through Cuban swamps, mud, fever, and mosquitoes—a deed which an American general described as "a most perilous undertaking, and an act of cool daring that has rarely been equalled in the annals of warfare."

But such deeds are not allowed to be buried in this world, and a great American journalist, Elbert Hubbard, who went down in the Lusitania, chose another way of telling the story of A Message to Garcia. His story of it has been printed millions of times, and we print it again because it should never be forgotten.

## A Message to Garcia, By Elbert Hubbard

When war broke out between Spain and the United States it was very necessary to communicate quickly with the leader of the insurgents. Garcia was somewhere in the mountain fastnesses of Cuba—no one knew where. No mail or telegraph message

could reach him. The President must secure his cooperation, and quickly. What to do?

Someone said to the President: "There is a young fellow by the name of Rowan will find Garcia for you if anybody can."

Rowan was sent for, and given a letter to be delivered to Garcia.

How "the tellow by the name of Rowan" took the letter, sealed it up in an oilskin

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1 в 10



pouch, strapped it over his heart, in four days landed by night off the coast of Cuba from an open boat, disappeared into the jungle, and in three weeks came out on the other side of the island, having traversed a hostile country on foot, and delivered his letter to Garcia, are things I have no special desire now to tell in detail. The point I wish to make is this: McKinley gave Rowan a letter to be delivered to Garcia; Rowan took the letter, and did not ask "Where is he at?"

By the Eternal! there is a man whose form should be cast in deathless bronze and the statue placed in every college of the land. It is not book-learning young men need, but a stiffening of the vertebrae, which will cause them to be loyal to a trust, to act promptly, concentrate their energies; do the thing.

Put this matter to a test: You are sitting now in your office—six clerks are within call. Summon any one of them and make this request: "Please look in the encyclopedia and make a brief memorandum for me concerning the life of Correggio."

Will the clerk quietly say, "Yes, sir," and go and do the task?

On your life he will not. He will ask one or more of the following questions:

Who was he?
Which encyclopedia?
Where is the encyclopedia?
Was I hired for that?
Don't you mean Bismarck?
Is he dead?
Is there any hurry?

Shan't I bring you the book and let you look it up yourself?

And after you have answered the questions and explained how to find the information and why you want it the clerk will go off and get one of the other clerks to help him to find Correggio—and come back and tell you there is no such a man.

Now, if you are wise you will not bother to explain to your assistant that Correggio is indexed under the Cs, not in the Ks, but will smile and say, "Never mind," and look it up yourself.

"You see that book-keeper?" said the foreman to me in a large factory.

"Yes; what about him?"

"Well, he's a fine accountant, but if I sent him up to town on an errand he might

accomplish the errand all right, and, on the other hand, might stop at four saloons on the way and forget what he had been sent for."

We have recently been hearing much sympathy expressed for the "down-trodden denizen of the sweat-shop" and the "homeless wanderer searching for honest employment," and with it all often go many hard words for the men in power.

Nothing is said about the employer who grows old before his time in the vain attempt to get ne'er-do-wells to do intelligent work.

I know one man of really brilliant parts who has not the ability to manage a business of his own, and yet who is absolutely worthless to anyone else because he carries with him constantly the insane suspicion that his employer is oppressing or intending to oppress him.

Tonight this man walks the streets looking for work, the wind whistling through his threadbare coat.

Have I put the matter too strongly? Possibly I have; but when all the world has gone a-slumming I wish to speak a word of sympathy for the man who, against great odds, has directed the efforts of others, and, having succeeded, finds there is nothing in it: nothing but bare board and clothes. I have carried a dinner pail and worked for a day's wages, and I have also been an employer of labour, and I know there is something to be said on both sides.

There is no excellence in poverty; rags are no recommendation, and all employers are not rapacious and high-handed any more than all poor men are virtuous. My heart goes out to the man who does his work when the "boss" is away as well as when he is at home.

And the man who, when given a letter for Garcia, quietly takes the message without asking any idiotic questions, and with no lurking intention of doing aught else but deliver it, never has to go on strike for higher wages.

Civilisation is one long, anxious search for just such individuals. Anything such a man asks shall be granted. He is wanted in every city, town, and village—in every office, shop, store, and factory.

The world cries out for such; he is needed, and needed badly—the man who can carry a message to Garcia.

## THE PHANTOM CATS

THERE was once a Japanese hunter who had strayed far from home in the

pursuit of a deer.

At dusk he was passing through the woods which clothed a steep mountain. Very far below he saw lights; but he did not try to reach the village lest in the darkness he should fall over some precipice. However, he saw a ruined temple a little higher up the mountain, and there in a

corner he lay down to sleep.

He was suddenly awakened by a terrible The moonlight shone through the broken roof and showed him twelve cats, all dancing and yelling, gambolling and shricking. The most dreadful thing about it was that they were using human words. The hunter understood that they were rejoicing over some feast which would soon take place, and they kept crying, "Tell it not to Shippeitaro!"

The hunter lay quite still, wondering what it could mean. Suddenly the cats

vanished and he was alone.

At dawn next day the hunter set off for the village below. The first person he met was a little boy who was crying. When the hunter asked what was the matter the child said: "My sister will be given to the demon tonight; my dear Plum Blossom will be torn to pieces by the demon."

"What demon is it who would do

this?" asked the huntsman.

"He lives on the mountain. He sends · terrible plagues upon us unless we sacrifice a maiden to him each year. It is now our family's turn to give a victim. Plum Blossom will be put in a great box and carried to the temple on the hill. At midnight he will come to kill her."

The hunter did not say one sympathetic word. He simply asked, "Who is Shippeitaro?"

"He is a big dog belonging to the

Prince," said the boy.

The huntsman then made the boy tell him where the Prince lived. Without waiting for breakfast he hurried off to the palace, unfolded his hastily-made plans, and borrowed Shippeitaro. Then he went back again to the village.

It was easy to find the house of the stricken family; a few words from the hunter changed this grief to hope.

At nightfall a party of young men climbed the mountain carrying a great box. They put it down in the ruined temple, and nothing could persuade them to wait, so great was their terror. Off they went with their lanterns, but the hunter hid behind a pillar.

Midnight came, and with a horrible miaowing the cats rushed in, led by a huge Tom with eyes like live coals. He ran up to the box and seized the lid with his teeth. Out sprang Shippeitaro and caught the monster by his throat. The huntsman ran up to cut off his wicked head. Then man and dog made short work of the other cats, which had been too stupefied with fright to escape.

After that no more demons troubled the district, and Shippeitaro was the bestloved four-footed thing in the place.

#### THE BOY WHO KEPT BACK AN ARMY

In the warfare which the French made upon the Tirolese, a people living in the north-east of Italy, the French soldiers attacked a village on the bank of the River Ard. The village could only be reached by crossing a swiftly-flowing river rushing along the bottom of a deep ravine. Across the ravine lay the huge trunk of a tree, which had been cut down on the bank and allowed to fall so that its trunk rested on the farther side, and the tree, therefore, formed a bridge.

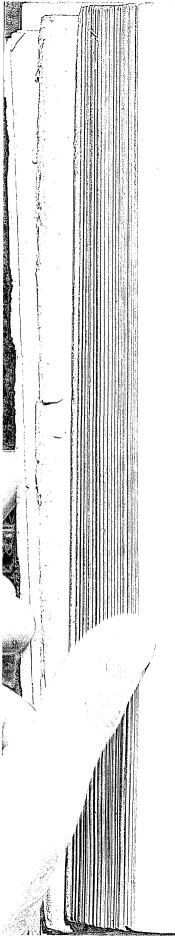
Three hundred Tirolese men and a boy guarded the bridge. The boy was Albert Speckbacher. As the French advanced the Tirolese began to hew down the bridge with axes, but the bullets from the rifles of the French soldiers fell thick and fast, and one after another the brave men fell. Among the dead was Albert's father.

The brave boy took his father's place. The bridge was nearly down; a few more strokes of the axe and there would be no way for the French to cross. Seizing an axe, Albert Speckbacher faced the fire from the French guns, and hewed the tree at the peril of his life. He cut it all but through—there was only a thin piece of wood holding the bridge together.

At that moment Albert Speckbacher gave up his life for his people. He threw down his axe and jumped on the tree with such force that his weight snapped the thin piece still holding it in its place, and the bridge and the boy fell together

into the swift river below.

The French were stirred by this act of bravery, and they buried the boy's body with honour, and set up a monument to tell how nobly he died



### KATE BARLASS OF THE BROKEN ARM

James the First of Scotland was a good king; but when he came to the throne, about 500 years ago, the country was in such disorder that he had to be stern and severe; therefore many of the nobles hated him and conspired to slay him.

It happened that the king went one winter to Perth, with his queen and her ladies, and abode in the Abbey of Perth, while his followers were scattered over the city; and here was the traitors' chance.

To make matters easier, some servants were bribed to remove the bolts and bars from the doors. And so it befell one night, when the king was sitting quite unarmed with the queen and her ladies, that a great clatter of weapons was heard without. Thereupon he guessed that his foes had gathered to murder him.

But as he knew that there was a vault under the chamber where he was he wrenched up the boards from the floor and leaped down, and the ladies quickly put back the boards and covered them just before the traitors rushed into the room. And they, not finding him, searched for him high and low. Then the king and the ladies in the chamber, thinking the danger was over, began to move the boards; but just at that moment they heard the traitors returning. There was no time to cover all up, and on the door was no lock or bolt to stay them—only the iron rings of the bolt.

Quick as thought one of the queen's maidens, Katherine Douglas, sprang to the door and thrust her arm through the rings of the bolt, crying out that there was no one in the room but ladies.

But the fierce men outside paid no heed to that, and beat upon the door. Alas! poor Katherine's arm was snapped, and the wicked men burst in and slew the king.

For her brave deed the name of Katherine Douglas found its way throughout the land, and men called her Kate Barlass, the lass who barred the door with her arm.

## THE TWO DAUGHTERS OF JAPAN

There was once a Japanese sportsman who loved shooting with the bow and arrow more than anything in the world. He took no pleasure in shooting at targets, but desired always a living mark.

Now, he had two daughters who were devoted followers of the gentle Lord Buddha. His teaching forbids men to take life except in cases of strict necessity. Their father was, in outward forms, a Buddhist too, but he brushed aside that part of Buddha's teaching which it did not suit him to follow.

The two girls often tried to dissuade him from this disobedience. They spoke of life as God's gift to bird and beast, which man had no right to steal from them, but all in

vain. They feared that Heaven would punish their father's soul in the next world.

One day a friend said to their father: "There are two storks which come every night to the lake beyond my garden. You ought to try to get them."

"I will shoot them tonight," cried the

archer. His daughters overheard.

When it was quite dark he set off for the lake, and waited. Before long he saw two white things moving by the shore. Two skilful shots brought them to the ground. He ran up, and saw that he had killed his own daughters. They had taken this way of showing him the sacredness of life.

In his grief and horror he flung away bow and arrows for ever.

## THE RACE WITH THE FLOOD

The most famous engine-driver in America, Hiram Free, has gone on his last ride, but long will his name be remembered. Every American boy knew of his race with the flood which swept away Johnstown, in Pennsylvania.

A huge dam, 700 feet long, held up the waters of the River Conemaugh in a reservoir, twelve miles from Johnstown. The railway ran down the valley and crossed the river by a bridge below the town.

From his engine Hiram Free saw the dam bursting, and a great wall of water, seven yards deep, come rushing down the valley. Putting on full speed, he dashed

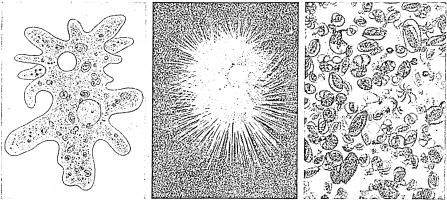
down the valley, with the waters tearing up the railway track behind, and his warning whistle gave hundreds of people time to escape. Outrunning the waters, he passed Johnstown and crossed the railway bridge, shrieking the alarm.

The town was almost entirely destroyed by the flood, and so were seven villages lower down the valley, but the railway

bridge stood firm.

This terrible accident showed American engineers the need of strong embankments to hold up great reservoirs of water; but most people remember it best by Hiram Free's heroic race for life.

### Nature's Wonderful Living Family in Earth and Air and Sea



An Amoeba, Protozoa with spines, and Foraminifera from the Adriatic Sea seen through the microscope

## THE WONDERFUL PROTOZOA

THERE have been few events of more vital importance to the life of the world than a moment in a quiet study in Delft, nearly three centuries ago, when an old Dutch clerk from an Amsterdam warehouse looked through one of the first microscopes and saw a new world in a drop of water. This Dutchman, Leeuwenhoek, saw through his lens that a drop of water is a world to creatures whose existence had never before been dreamed of.

Continuous and brilliant research has established the fact that these microscopic animals, the Protozoa as they are called, a name meaning first animals, have a powerful influence on our health and fortunes. Yet the old Greek scientists, on whose teachings all subsequent theory and practice of medicine and surgery rested for 2000 years, never saw them, never dreamed they could exist.

The significance of these minute creatures lies in their staggering powers of multiplication, and in their deeds for good and ill. Without them no dead body could be destroyed by natural decay, and our world would be one vast charnel house of dead animals. On the other hand it is to be suspected that, but for them, but for their action in thinning out the human races, the Earth would long ago have been over-populated in its habitable areas.

An elephant requires 25 years to attain maturity and become a parent; a single protozoan, if no fatal accident attended the lengthening-out of the living chain, would become the ancestor of a million of its kind in the course of four days! For good or ill, these creatures, teeming at the very roots of life, are the paramount factors in the scheme of animal existence.

A furious elephant may trample a score of us to death in a mad rush of rage; a man-eating lion may devour three or four human beings in a week; all the venomous snakes of India may and do destroy 20,000 of our fellow creatures every year. But the protozoa can slay whole nations. They are the evil genii of the tropics; they scourge the native of the Polar regions; they work in secret, dealing death in the slums of every town and village.

Wherever mammals travel they can go, so that they can enter a new land with ourselves and make life impossible there for us, for our cattle, and for other domestic creatures. They can travel from seaboard to seaboard of an entire continent, smiting wherever they find life. Since the dawn of human knowledge they have broken at times from their age-old cradle in farthest Asia, to sweep across the length and breadth of the Old World, manifesting their malevolence in the dreadful

PREHISTORIC LIFE · MAMMALS · BIRDS · REPTILES · FISHES · INSECTS

operations of the plague, to denude nations of half their populations.

There are parts of Africa today in which conditions somewhat resemble what must have been those when leprosy and pestilence were rife in our land; where white men are forbidden to enter, where resident natives are not permitted to come out of doors lest they should spread the disease, which, powerless to affect natives who have become immune, spreads like a windfanned fire among the rest.

## $T^{\mbox{\scriptsize HE BILLIONS}}$ of tiny forms of which the mountains are made

There are many forms of protozoa, and not all are harmful. Many are directly beneficial to animal life; as food, as snappers-up of the seeds of corruption and poisonous waste. Then there are the shelled protozoa, which have done more for the Earth than man himself!

Where are the bones of Alexander, of Caesar, of William the Conqueror, and of the great scholars and philosophers of antiquity? Their physical elements are one with the dust blown about the Earth.

But the Foraminifera, the Radiolaria, and other forms, constitute a great part of the solid surface of the Earth itself. In such unthinkable billions have they lived and died that their bodies, welded by time and tide, have built up mountains.

They have fixed the boundaries of nations, mountain ranges which have divided people from people, which have determined the geographical range of animals or birds. So minute are they that they must be magnified to be seen, yet their dead bodies give us the limestone rocks, thousands of feet thick, towering far above sea level in America, Europe, Asia, and Africa.

## THE HOUSES IN PARIS BUILT UP OF FORAMINIFERA SHELLS

We have made the Suez Canal, a mere furrow in the sand. We have made the Panama Canal, a scratch across an isthmus. But these little creatures have raised, with their own dead shells, the mountains separating Sind from Persia; it is through their substance that the tremendous passes leading to Kabul are formed.

Their range runs from the Alps to the Carpathians; they are mountains in Algeria and in Morocco. They were forming rock in Egypt before Pharaoh was, before Adam was; they were fossil steeps before Baghdad was a city; they crowned

the heights of Persia millions of years before Omar Khayyam.

Paris builds her noblest houses of Miliolite limestone, as for ages she has been doing; it is all from the shells of the foraminifera.

So we see how vital a part in the story of the world these simplest of all animals have played, and still play. The lowliest of all are the Amoeba, a name meaning an animal of changing form. In appearance it is a speck of jelly. It consists of only one cell.

Now all Life arises from a single fertile cell, whether it be a chicken, a chimpanzee, a tree, a tortoise, a mouse, or a man. But such a cell (or ovum) divides and redivides till an embryo is formed, changing slowly into a body which may become an oak tree or an elephant. With the amoeba the process is rounded off within the narrowest limits.

While higher life is made up of myriads of cells, these creatures are but one tiny cell, a minute self-contained microcosm of life in its least complex form. There is nothing else so low in the animal world; nothing else so low in the whole organic realm, save the bacteria, which are microscopic vegetable organisms of as humble a status.

# HOW THE AMOEBA SURROUNDS ITS

But the things with which we are dealing are animal, like the life-principle of the egg, but never advancing beyond it; just a mite of protoplasm which swims by altering its shape. It does so by thrusting out little bits of its own substance, withdrawing them, and putting forth other projections on the other side. There is neither mouth, nor nervous system, yet the amoeba eats. It does so by surrounding its food and absorbing it; tiny organic particles, minute algae, little creatures of its own order.

It has no brain, yet it seems to exercise conscious functions. It chooses its food; it swims away from anything unacceptable to it. It shrinks from touch and from distasteful chemicals. In the presence of danger, such as drought, absence of food, or of other adverse conditions, it can shrivel up and wrap itself in a garment like a tunic.

There, under the microscope, we see Life at its simplest. The animal takes in food, digests it, discards the waste matter in it. We see food changed into energy, into the function of reproduction, before our eyes. When the amoeba is well nourished it divides, and one becomes two, after which the two become four, and the four eight, and the eight sixteen in an incredibly short space of time.

What do they know, these specks of life? Some thinkers see in them something like a shadow of Mind; others perceive only automatic reaction to stimulus from outside. The cells in the human digestive system select the food they can absorb; the cells in our blood devour alien elements harmful to us. Are we to credit them with intelligence or consciousness of what they do? It is beyond us all. We do not know. The subject is full of mystery.

## THE TINY TUBES OF SAND WHICH THE AMOEBA MAKES FOR ITS HOME

The marvel is not lessened by the fact that some of these one-celled animals, floating at large, are marvellous builders with sand and quartz. So tiny that they must be examined under a powerful lens, these animals raise for themselves, as dwelling places, minute tubes of sand and other particles, cemented together by material of their own secreting. Some fashion little homes for themselves out of the smallest spicules on the living sponge.

Sleeping sickness, most frightful of modern scourges, is caused in Africa by one of the amoeba, the *Trypanosome*. This is not one which moves by the extrusion of protruberances like feet; it secures movement by a lash-like filament called the flagellum. There are various species of trypanosomes, and not all are harmful. All reside in the blood, and all are carried to it by flies or ticks. Some cause diseases highly fatal to all domestic animals, but the ones most feared are those which strike men dead of sleeping sickness.

## THE PARASITE WHICH SOWS DEATH AMONG STRANGERS IN ITS HAUNTS

The curious thing is that they are harmless to their natural hosts—elephants, lions, antelopes, and to resident natives, who become immune. It is only when strange men or cattle penetrate their preserves that they prove dangerous. We blame the fly, because it bites, and by biting, introduces the fatal parasite into the blood, but the fly in itself is innocent of anything more fatal than the midge which steals a drop of our blood as we play tennis on an English lawn,

It is the little things it leaves behind it which work the mischief. The parasites multiply in the blood, and the end is almost certain death, whether it be a man or his horse, his ox, his ass, or anything living that is his. How came the parasite by its fatal properties? How came it to make the fly its vehicle? The trypanosome can continue in prosperity all its days and do no harm, so long as it has the blood of immune animals in which to dwell; but let a stranger come within its orbit and death will surely follow.

So it is with nearly every tropical disease known to us; malaria, yellow fever, relapsing fever, pellagra, blackwater fever, and so on; so, too, with the maladies which sweep down our cattle and kill them wholesale, or rob them of their flesh and milk. In some parts of America today they make it impossible for horses to live. Harmless to their natural hosts, they are all disastrous to new-comers.

Cholera, typhus, dysentery, and other maladies of careless civilisation are the evil magic of the shell-less protozoa. A single microscopic animal, a single cell of life, may hurry to the grave the finest brain of the age; it may rob us of some great discovery, some noble poem, some masterpiece of music.

What if a malarial mosquito had bitten Shakespeare, as a boy, or had attacked Milton when he was in Italy, or had laid Columbus low in the malarial ports of Spain.

# Man's great battle against the parasites in dark places

The purpose of such forms of life is more than the human mind can fathom. We can avoid the ills they have it in their power to inflict by steering clear of the areas they inhabit, but we challenge death in terrible form when we venture into their domain.

That is one of the many threats held over the head of insurgent Man. Frost and snow and bitter numbing blasts warned him that he should not violate the secrecy of the Poles; yet he has been to the North and to the South. The oceans threatened to drown him, as the air drowns fishes, if he should hazard a voyage across them; but he has sailed every sea and plumbed every depth. He has bridled fire, harnessed the wind, cozened electricity from its secret lair in everything. And he has braved the horrors of lands where parasites wait to pollute his blood and sap his life. He will conquer there, too.

He will have to strike at the bearers of the parasites, or find some way of rendering them harmless. He will find some universal quinine, as it were, some sovereign antitoxin, or the equivalent of some allenveloping mosquito-net safeguard, day and night, to keep his brave bones safe. The insects which do the biting and introduce the evil are only the guns; the protozoa are the explosives. But Nature herself seems to have pulled the trigger.

One advantage of the discovery of the protozoa has been to engender fruitful study which has cleared the mind of some of its most foolish notions. We have seen how these lowly life types are born. It was only in the time of Pasteur, and mainly by his efforts, that there was dispelled the idea of Life originating spontaneously. Men of all ages had thought that life could spring into being from mud, from dead flesh, from hay, and from a thousand other things. We know now that every offspring must have a parent like itself.

Some of the animal organisms we find in stagnant pools are very near to plant life, for they are green from a pigment which is identical with the chlorophyll commonly supposed to be peculiar to plants.

These little things, in the presence of sunlight, can liberate free oxygen by a complicated process, as plants can, and they deserve to be remembered from the fact that it was by studying them that Priestley made his discovery of oxygen.

## Two thousand infusoria which can stand side by side in an inch

There are many interesting forms among the Infusoria, as we call these creatures of the pool. Some have collars, into which the food is received; some are pear-shaped, so minute that it needs 2000 to make a line an inch long. Others of this animal group are so plant-like in colour and habit as to be claimed by some botanists as true members of the Plant Kingdom.

One such is the Volvox, a pin-head beauty of our fresh waters, but the botanist cannot claim the Noctiluca, which gives off the phosphorescent glow that lights the sea at night with fairy radiance. These are of various degrees of importance in size, and boast their giants, quite one-fiftieth of an inch in diameter. Another night-light of the sea and the lakes is a triangular midget of loveliness which kindles its lamp only to go the way of multitudes of other forms of life, which make up the great body of floating fish-food called plankton.

A localised group of these creatures are the Lobosa, which live mainly in freshwater or in damp places on land. One of these is the deadly amoeba which enters the human body and causes dysentery.

Next in order come the tiny shell-bearing foraminifera, the midgets we have already discussed, which, when their life is over, sink to death in such numbers, age after age, that they have formed mountain chains, and in our own time are building up new continents beneath existing seas.

Their shells are perforated by varying numbers of openings through which they put forth the thread-like particles of protoplasm which row them along and grasp their daily food.

Those which have a single opening in the shell are called the *Imperforata*, those with many openings are known as the *Perforata*.

## THE SOLID RIDGE OF ROCK WHICH TOUCHES THREE CONTINENTS

The Perforata are so enormously numerous in the sea that the bed of the ocean is a thick ooze of their remains—the Globigerina ooze of which we read in books dealing with ocean research. The ancestors of existing types so crowded ancient seas with life that they formed a solid ridge of submarine rock from the southern part of North America, westward through Europe, and on into Asia.

It is to this great company that the Nummulites belong. The impulse towards giant growth appeared here in early times, for these coin-shaped animals had members as big as half-a-crown.

Tiny as most of the animalcules are, Nature appears to have taken anxious care over them. The sun animalcules, the extraordinarily complicated design of the lattice animalcule, serve as an introduction to the Radiolaria. There is in these generally a flinty skeleton, and within that a membranous sac within which is the vital part of the animal. But the skeleton, and the spicules radiating from it defy description, and their bewildering complexity must be pondered by the student with a good microscope.

## THE QUAINT ANIMALS WHICH UNITE AND MARCH AS ONE

Then there is a whole number of fungus animalcules, which we see as jelly-like substances adhering to bark. These give off spores from which come specks of living protoplasm, each equipped with a single whip-like flagellum. This organ later disappears, absorbed into the body, and the animal assumes the shape of an amoeba.

Many of these animals at this stage may unite and march, feeding as they go, before settling down to the task of reproduction.

The Sporozoa have the like habit of turning in maturity from youth's activity to the laziness of age. Their cilia, or other aids to locomotion, leave them as they reach full size.

In this assembly are some of the deadliest enemies of the human race. The germ of malaria and yellow fever, of red murrain in cattle and of other agonising maladies in man and his animal allies, are to be encountered here. No part of the host's body escapes their penetration. They reach the blood-stream, the digestive canal, all the vital organs, even the corpuscles of the blood. Each species seems to know its appointed station.

# Man's supreme achievement in . Discovering his deadly foes

They are harmless to the insects which act as bearers to them, only when they are transferred elsewhere do they become malignant; like bombing aeroplanes liberated for their fatal errand from an inoffensive aeroplane.

The mightiest in size is just visible to the unaided eye; the remainder are to be sought only under the microscope. Some are so infinitely small that they have never yet been seen, never yet been caught in the finest filter which the skill of manufacturers can devise.

Yet these are they whose ancestors cast down cultured communities of human beings in times of old, so that poor men lifted up their hands in despair, believed the visitation to come from angry gods, and offered their fairest and dearest, their only sons and daughters, as sacrifices on their grim altars.

To have discovered the form and faculties of these overwhelming foes to life is one of the supreme achievements of Man. Many of the ills arising from the activities of the protozoa can now be checked. Brave men risk their lives in the strongholds of pestilence and fever to grapple with the amoeba where it reigns.

## THE HEROES WHO GIVE THEIR LIVES FOR THE SAKE OF MANKIND

It demands courage of the very highest order to nerve a man to the task of isolating himself, far from civilised aid, in the midst of the invisible foe which strikes with loathsome disease and painful death. But men make the attempt, and they triumph; and all of us profit at their expense. Each new discovery points the way to the

solution of another mystery. The world is benefited directly by the information gained at such cost, and mankind as a whole is inspired and energised by the examples of glorious courage exhibited by heroes who dare and die for our sakes.

We can only learn to guard ourselves against the protozoa. Dismiss them we cannot; we might as well seek to banish the sands of the sea or the pollen wafted from tree to tree and flower to flower. They were here before us; they have continued inviolable in our midst; if we fail against them they will be here after we are gone, and, mastering all superior forms of life, remain as were their ancestors, the ruling races of the world.

They are still the lowliest types of animal existence known to us; they begin where the plants end, and it is difficult to say whether this form or that belongs actually to the plant or the animal kingdom. But, primitive as they are, mystery and marvel incomparable are theirs. We can see the rhythm of life, pulsing before our eyes as an amoeba is revealed to us but, though we know so much, who could by any art or craft produce the like of the most insignificant of these creatures?

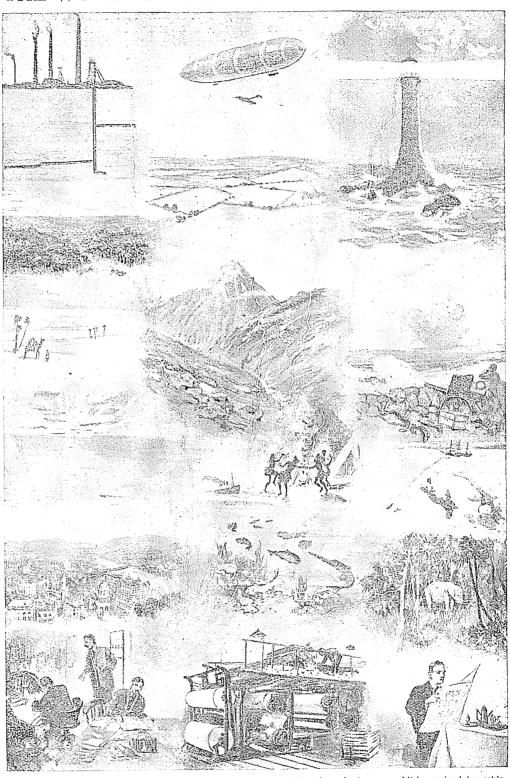
## $T^{\mbox{\scriptsize He}}$ vast range of creation between man and the protozoa

At one end of the scale of Life we have Man; at the other end we have the Protozoa. The whole range of Creation stretches between. We are lords of the land, the waters, and the air, but these little creatures which hold our lives in fee, are above our arts and science, fashioned in the laboratory of Nature whose door is still locked for man.

Man, monkey, the ravening beasts of the jungle, the monster and the midget of the waters, the poisonous reptile and the high-hearted songster of the grove, the giant tree of the forest, the tiny animalcule of the ocean and the ditch, all are one in that, all are made of precisely the same elements. But the Master Hand that brought these elements together and made them what we see, is the solemn mystery too great for words. We know the name and number of the elements, but no man can group them to make them live.

The least of all living things, these specks of Life are in some ways the most marvellous in the gallery of living Creation, and it was one of the great moments of history when, all unsuspected, they were revealed to the astonished ken of Man.

### THE WORLD'S GREAT WHISPERING GALLERY



No matter where anything of importance or interest may occur, within a few minutes news of it is received by cable or wireless in the newspaper office, mankind's audience chamber, and is there printed and sent out for all to read.

#### The Story of the Things We See About Us Every Day



This is a page of The Children's Encyclopedia (page 6681) in three forms. On the left is the loose type set up by the printer; in the middle is the matrix, a paper impression of it; on the right is the plate, the paper impression transferred to a curved sheet of metal, which is put on to the printing machine.

### THE NEWSPAPER

HERE is no organisation anywhere so vast, so quick, so complicated, and so far-reaching as the organisation of a newspaper. It goes everywhere and touches everything. It engages the most amazing army of men ever summoned together for a single purpose. They speak every language known to man, these gatherers of the news of the world. They live by the jungles and backwoods, on the edge of the wilderness and in the heart of the desert, in palaces and cottages and parliaments. Some are rich and some poor; they have had among them prime ministers They record the wonderful and kings. story of the world from day to day. They may be found from China to Peru. They are the eyes and ears of all mankind.

The newspaper is the master of democracy; it is interested in everything and everybody. Let a man steal a watch or carve a monument, and the newspaper will make a note of it. Let a man say something new, and it tells all the world in the morning. We shall know to-morrow what China is doing today.

It is the mirror of the world. Pick it up tonight and it will show you what has happened in the world since breakfast-time.

It has come together from every corner of the earth, from men of every land, with every kind of mind, and it has come to us from clicking telegraphs and spinning wheels, and the most bewildering mass of machinery ever seen; but it comes to us still throbbing and beating with life, still vivid and fresh, the daily wonder of the living world.

It is an astonishing journey that a paragraph in a newspaper makes. President Wilson, let us say, sitting in George Washington's seat at White House, thinks out his Fourteen Points. A journalist puts them down, and in a minute or two the telegraph is clicking out the words. They come from America to Europe as fast as Mr. Wilson can speak them. It takes practically no time at all for the mysterious ether to carry its momentous message across the wide Atlantic. A minute or two may have brought the message from one continent to another. We will say the message is in London. Instantly it appears by telegraph on a magic paper roll in the newspaper office. You stand before a tiny printing machine encased in glass, which unwinds a roll of paper and prints the message on it before your eyes.

INDUSTRIES · HOW THINGS ARE MADE · WHERE THEY COME FROM

No visible hand is touching it; the power that makes the wheels go round is far away, but this wonderful machine brings the first news of events that are happening all over the world. It is like the voice of the world speaking into one little room, bearing tidings of good or ill. It is the universal recorder which, untouched and often unseen, registers the movements of the world. In the click of this machine the newspaper editor hears the first whisper of the day's events.

# THE POWER OF A NEWSPAPER WITH ITS MILLION VOICES

But there is much to do before this whisper of the news becomes the mighty shout of a paper with a million voices. This news is to be printed on a million separate sheets of paper, and it must be done at once. If you can imagine Cheops thinking out the Great Pyramid, and ordering his hundred thousand slaves to put it up before the morning, it would not seem a more bewildering task than this making of a newspaper in a single night. Compared with the making of a paper the building of the Pyramid is ridiculously simple. It is true to say that there is nothing in the daily round of the the world that can compare with the stupendous achievement of a newspaper. Night after night it is produced, its energies pouring from the ends of the Earth, to be gathered up in one room, put through a hundred processes, passed through machinery that seems to be almost human, and reproduced in a hour or two for any man to read in the remotest corner of the countryside.

## $T^{\mbox{\scriptsize HE}}$ wonderful type-setting machine which almost seems to think

But we are forgetting the way the paragraph goes. It comes on a scrap of paper to that astonishing machine that almost seems to think, the linotype. A man sits on a stool in front of it and taps down the keys, as on a typewriter. As he taps a key a letter cut out in brass falls down into a little space. The next letter slips beside it, and the next, and the next, until a line of letters lie side by side, all cut into brass, so that in another moment, when they are carried to a slot with molten metal pouring through, the metal runs into these tiny brass moulds and a solid metal line is made, with the impression of the letters on the surface. There may be ten thousand lines in a newspaper set like that, line by

line, until the paper is complete and the paragraphs can be put into columns, and the columns can be put into pages.

One of the supreme inventions of our time is this linotype, but wonder on wonder is to come. The paragraph lies still in its place in the column, locked with perhaps six other columns into a page with about a thousand solid metal lines. You can pull a few proofs from a page like that, but the lines would slip about and the metal would wear out if you tried to print a million, and the page must be converted into a solid metal mass. It is passed through a mangle with a soft sheet of paper, so that every letter on the page is impressed on the paper. The paper is then shaped to fit the round roller of the printing machine, and thus it reaches the newest product of the inventor's brain that has reached the newspaper world.

It is called the casting-box. The paper matrix is put into it, and in 45 seconds the casting-box delivers the page in solid metal, rounded and trimmed and bored to fit exactly in its place for printing. It comes out so hot with its rapid transformations that it must be cooled in water instantly, and as it is cooling duplicate plates come out in the casting-box at the rate of five in two minutes.

# THE AMAZING MACHINE WHICH PRINTS THOUSANDS OF PAPERS IN A MINUTE

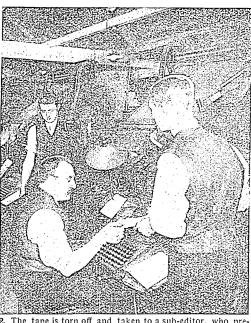
Our paragraph now finds its way at last into the heart of what is perhaps the most astounding piece of machinery that has ever been set up. It is like a palace of industry in itself. At one end is a colossal roll of paper, four or five miles long, which travels through this vast machine at the rate of ten miles in an hour, and drops out in its proper place exactly as you buy it. This machine unwinds the paper, prints it, cuts it, folds it, counts it, and does all this at the rate of thousands every minute. It is the mechanical miracle of our mechanical age.

We begin to understand, perhaps, something of what a newspaper means, but it would fill more than a whole volume of The Children's Encyclopedia to tell the whole story of this daily record of the world. We should be proud of it. It is the noble product—the ignoble product, perhaps, sometimes—of the physical and mental energies of thousands of men. Neither kings nor governments can do without it, and in it the myriad peoples of the Earth find the sure shield of their liberties.

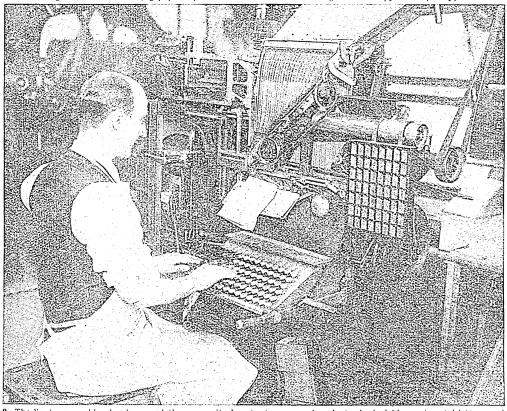
# PICTURE-STORY OF THE NEWSPAPER



1. In a newspaper office there are a number of tape machines—telegraph printing instruments—which are ticking almost every minute during the day and night, and printing news items on a long paper tape.



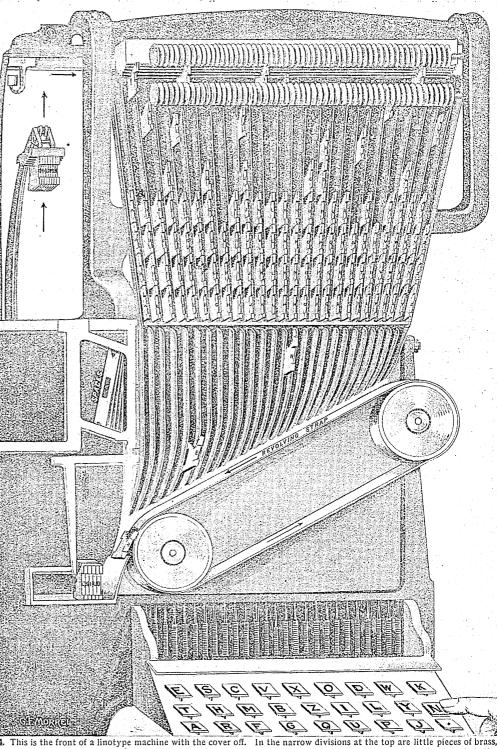
2. The tape is torn off and taken to a sub-editor, who prepares the news tor the newspaper and sends it to the printing room. Here a printer at a linotype machine is receiving the news copy to set up in type.



3. The linotype machine has increased the compositor's output enormously. Instead of picking out metal letters and setting them in a row, the man simply works a keyboard, and the letters form themselves and take their places in lines.

6961

### A MACHINE THAT ALMOST THINKS

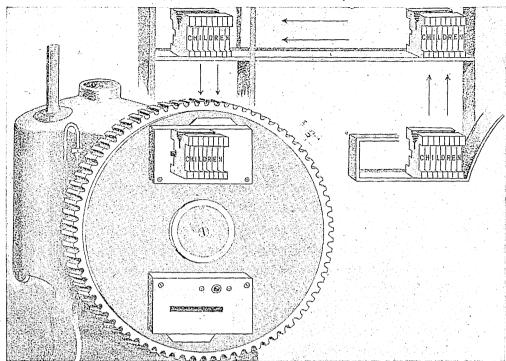


4. This is the front of a linotype machine with the cover off. In the narrow divisions at the top are little pieces of brass, which fall as the keys are touched. The finger has just pressed down the N, and the brass piece with N on it is the last letter we see falling. The letters fall on to the revolving strap, and are carried into a little box above the keyboard on the left. In this picture the box has in it five little pieces of brass, with the letters C H I L D. Coming down are the letters R E N, completing the word CHILDREN. On the next page we shall see what happens.

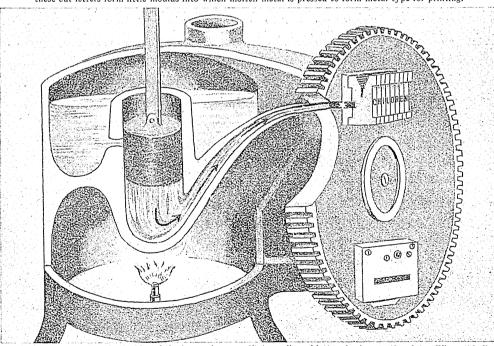
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6962

# HOW THE WORDS ARE SET IN METAL

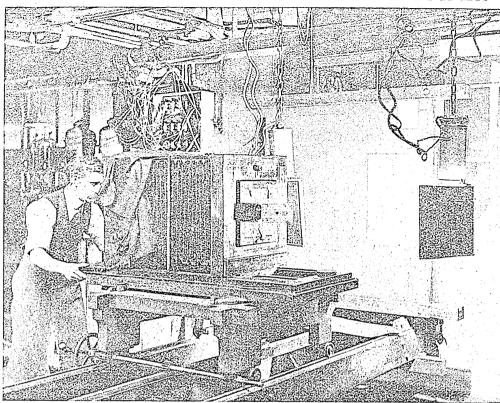


5. The brass letters are carried automatically from their box till they rest against a slot in this wheel. There are two slots to save waste of time. The letters are cut into the brass, not raised up on it, and, as we shall see in the next picture, these cut letters form little moulds into which molten metal is pressed to form metal type for printing.



6. The letters are cut on both sides of the brass pieces, so that one line of letters is close to the slot. When this line of letters is ready a heavy punch comes down into a copper of molten metal, and forces the metal up a passage into the slot. The place is marked in the picture by a star, and the copper is shown as if it were cut in two. When the line of letters is cast the unused metal rushes back into the copper, the wheel turns, bringing the empty slot into position, and the brass pieces and the newly cast line are carried away by an iron band, the pieces to be used again, and the line to be placed in position in the column of news that is being set up.

#### MAKING THE PICTURES FOR THE PAPER

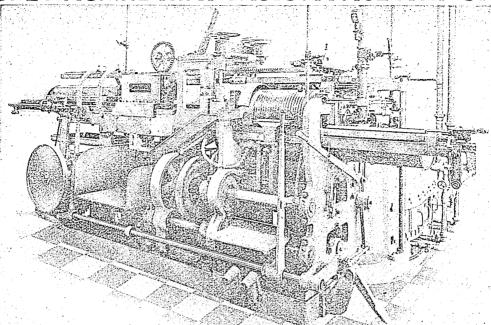


7. On this page we see how pictures are made so that they can be printed in a newspaper. A photograph or artist's drawing is photographed by the big camera shown here. The picture is on the right with a strong light shining on it, and is photographed in the same way as the photographer takes our portrait. But between the lens and the plate in the camera is placed a glass ruled with fine lines crossing at right angles. This is called a screen, and it breaks the picture up into tiny dots, so close together, however, that they seem wined and do not spoil the picture.

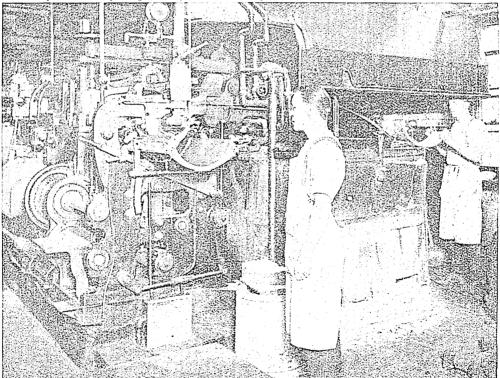


8. Without the dots pictures like this one could not be printed in a book or newspaper. Ink pressed on to a smooth surface would become a blur, but dots on the block from which a picture is printed give the ink something to "catch hold of," and the ink will only print where there are dots. The picture negative is printed on to metal and the plate is inked over and put in a moving bath of acid, which eats away the metal where there is no ink. The ink protects the dots so that the acid cannot affect them, but the acid wears down what is not inked, leaving the picture made up of dots.

### THE MACHINE THAT CASTS A PAGE A MINUTE

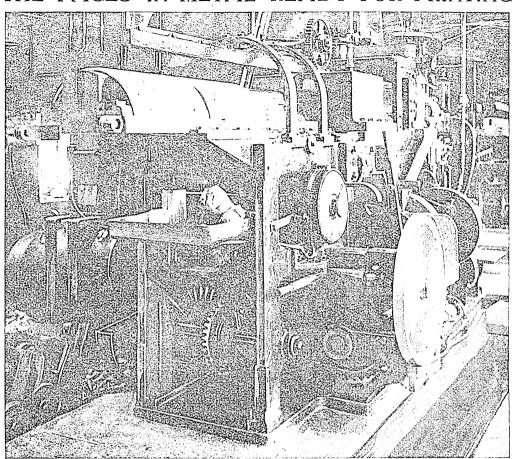


9. When the lines of type have been arranged in columns and the columns into a page with the picture-blocks in position, a proof is pulled and is read and corrected. The corrections are made, and then the page is ready. But we cannot print millions of copies from the page in this form. The whole page must be converted into a solid metal mass, curved to fit the cylinders of the printing machine, and this is done by the machine, shown in this picture and the one below.

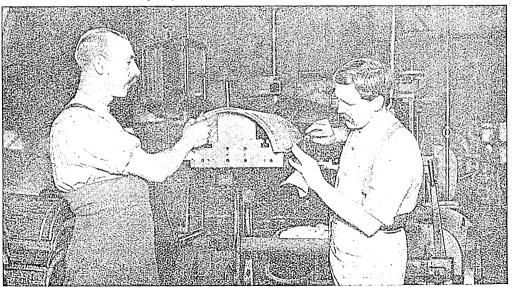


10. First of all the page as it comes from the composing room is passed through a mangle with a sheet of soft thick paper against it, and every letter and picture on the page is impressed on the soft paper. This is called a matrix, and it is then curved round to the shape of the printing machine cylinder, passed into this end of the autoplate machine, and in 45 seconds at the other end the page is delivered in solid metal, rounded and trimmed to fit in its place.

### THE PAGES IN METAL READY FOR PRINTING



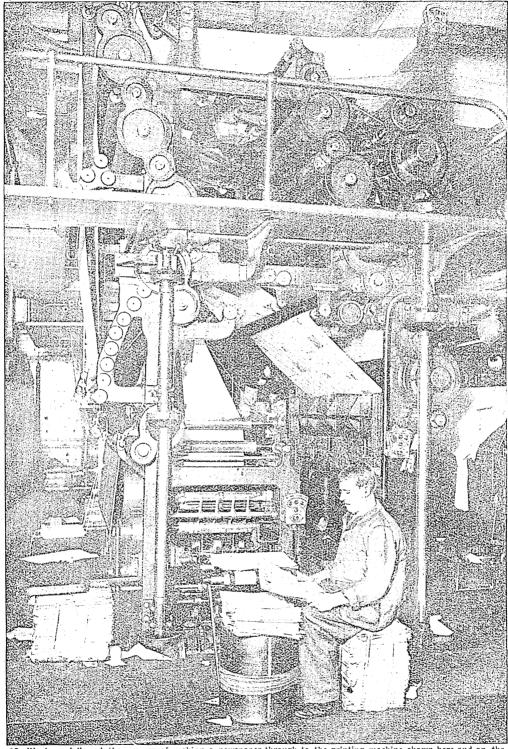
11. This is the delivery end of the autoplate machine with solid metal pages that have been automatically cast and trimmed by the machine. Three of these machines will, in an hour, cast four hundred and fifty curved metal pages which are transferred to the great printing machine on which they fit as close and tight as parts of a watch



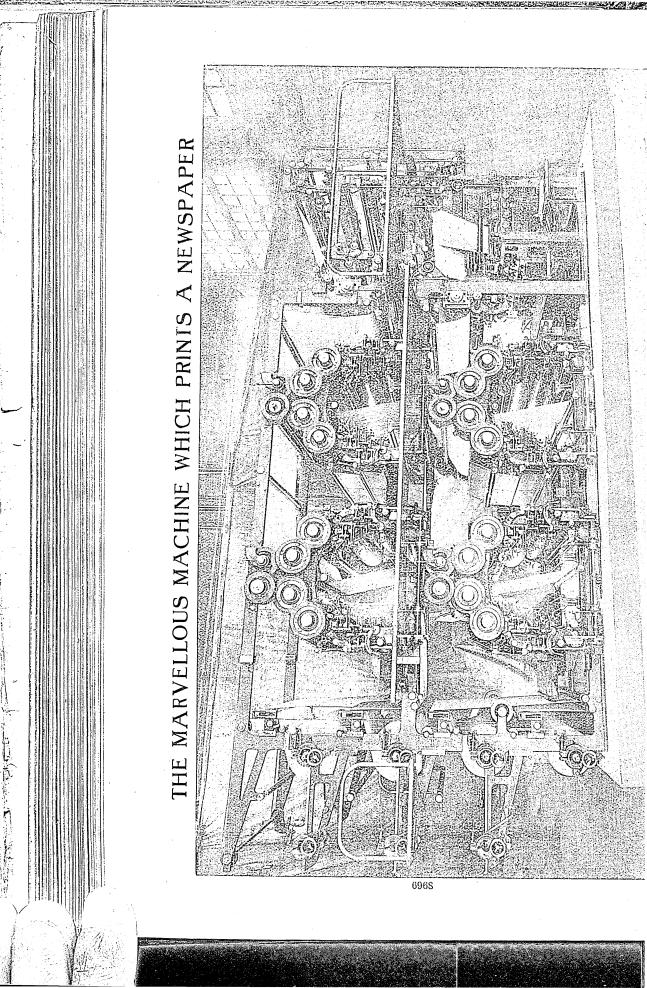
12. Here a plate is being taken away from the autoplate machine, ready for fixing round the cylinder of the printing machine shown on page 6968. When the plates are done with they are melted down into block metal for further use.

6966

### THE GREAT MACHINE DELIVERS THE PAPERS



13. We have followed the process of making a newspaper through to the printing machine shown here and on the next page. Here the papers are delivered, counted in quires, and folded ready for the newsagent. The Children's Newspaper is printed in exactly the same way. It is only by means of this ingenious machinery that papers can be produced rapidly enough and in quantities sufficiently great to meet the enormous demands of the day.



14 This is the very latest type of printing machine, producing the papers at the rate of 72,000 sixtecn-page papers an hour. The rolls of paper, each containing about five miles, are arranged in position at one end, the machine is set going, and the paper rushes through at 13 miles an hour. The papers printed, cut, folded, and counted in quires, fall out at the other end.

Let the thick curtain fall; I better know than all How little I have gained, how vast the unattained.

Others shall sing the song, others shall right the wrong, Finish what I begin, and all I fail of win.

What matter I or they? Mine or another's day, So the right word be said, and life the sweeter made? Whittier

#### MUST ALL THINGS END?

ALL things do not end. The Preacher wrote long ago that there was no new thing under the Sun, and yet it is very difficult to say what really does end and what does not.

We can think in a moment of a hundred things that do end—such as, say, a piece of string, a stick, a fire that dies out, a river, or a race. These have the sort of ending that we can see with our eyes. We can think in a moment of a hundred things that end for us-such as, for example, a storm, which comes to an end as far as we are concerned, though we cannot say that the rain really ends, because the storm may have gone somewhere else. Or we may be watching a ship pass at sea, and the beautiful sight may come to an end because the ship passes from our view; but the vision is ended only for us, because, of course, others may watch the ship from beyond where we happen to be.

There are other things which we may allow to end or not, as the case may be, because we can control them. There are many cruel things in the world which men might bring to an end if they would, such as bull-fighting in Spain, or the cruel treatment of children by drunken parents in England, war anywhere. Men could stop these things if they would, as they can stop the running of an engine or the ticking of a watch.

A clock has been made which is expected to run for ten thousand years, so

that we might think that that clock, at any rate, has no end. We may be sure, however, that the stuff of which the clock is made will crumble away in less than ten thousand years, and that brings us to what this question really means. For are we to say that when the clock no longer tells the time it is ended? We know that nothing can be utterly destroyed, and so we know, therefore, that nothing can be utterly ended. But the form and shape of everything that we can see or handle may end.

The stuff of which the clock is made may crumble; but, though it is no more a clock, it is still stuff of another kind which we may call dust; and no doubt it might change, in millions and millions of years, through the action of natural forces that are always at work, into stuff of which another clock might be made. And so, of course, if a clock can end as a clock, the wall on which it hangs may end as a wall; the house which the wall supports may cease to be a house; the street in which the house stands may cease to be a street; the town through which the street runs may cease to be a town; and the very Earth itself may cease to be as we know it now.

After all, the Earth has not always been as it is today. As Tennyson says:

There rolls the deep where grew the tree, O Earth, what changes hast thou seen! There where the long street roars hath been The stillness of the central sea.

FIRE · WIND · WATER · LIFE · MIND · SLEEP · HOW · WHY · WHERE

But, although man has not yet learned all that he has to learn, everything that man does know tells us in the plainest possible words that the Earth can never be destroyed, however much its form may change. We speak of a thing wearing away, but nothing really wear; away: its form changes, that is all.

So that what comes to an end is not a thing itself, but the form of a thing. The desire for excitement will not end in Spain, but the day will come when it will be satisfied by something nobler

than men fighting with bulls.

This book may end, in the form in which we hold it in our hands; but the thoughts this book has put into our minds, the feelings that have grown in our hearts as we have read it, will remain and influence our lives. Of one thing let us be sure for ever—that goodness never ends, that all this beautiful world, this wonderful life of ours, was not created by God to exist for a few years and then to die. The changes of Nature are sometimes more than we can understand, and the last change that we know, the sleep that we call death, is the strangest of all. But it is a sleep, and not an end.

#### What Are the Apocrypha?

The Apocrypha are books written in very early times and put forward for acceptance as Scriptures, either in the Old Testament or the New Testament, but not accepted by the whole, or in many cases by any part, of the Christian Church. The most generally known of these books are the Old Testament Apocrypha, as formerly printed in Protestant Bibles between the Old and New Testaments. These Hebrew books were translated into Greek in what is called the Septuagint version, but were not accepted by the Jews of Palestine as sacred Scriptures. They are accepted as Old Testament books by the Roman Catholic Church, if they are included in Jerome's Latin translation from the Septuagint known as the Vulgate. I Maccabees and 2 Maccabees are included, and 3 Maccabees and 4 Maccabees are not. The Eastern (Greek) Church also accepts There is a great deal of other apocryphal Jewish literature of the Old Testament period which is neither accepted as authoritative by the Jewish religion nor by any branch of the Christian. Church. Furthermore, many apocryphal gospels, histories, epistles, and visions, written in Christian times and claiming

to come from apostles and others mentioned in the New Testament, are rejected as Scriptures by the Church, though some have a historical value. A great deal of apocryphal literature produced by the Jews in the centuries immediately preceding Christ, and by Christians in the centuries immediately after, was of the kind called apocalyptic, or visionary. Examples of writing of this kind included in the Bible are the prophecies of Ezekiel in the Old Testament, and Revelation in the New Testament.

#### What is a Dew Pond?

What we call a dew pond is a shallow hollow often found on chalk hills or other high and dry places where it cannot possibly be fed by springs, though it contains a good supply of water, even in dry weather and hot summers. Rain may account for some of the pond's water, but most of it is supplied by mist or dew. These ponds, which are of very ancient origin, dating back possibly to the Stone Age, though they are still made by wandering rural experts, depend on laws of moisture, condensation, and heat conduction, which the people of old time found by experiment. The pond is made by digging a wide, shallow saucer in the hard soil, and first laying in the hollow a sort of thatching of straw or reeds. On top of this is laid a good thickness of clay which will not let water through. On a hot summer's day the ground round the pond is warmed, but its heat cannot get to the clay pond bottom because of the non-conducting thatch. Therefore, when night falls, the cooler clay attracts more moisture from the atmosphere. It condenses and gradually fills up the pond in the course of days or weeks, and it cannot get through the clay to run away.

# What is the Biggest Single Thing in the Universe?

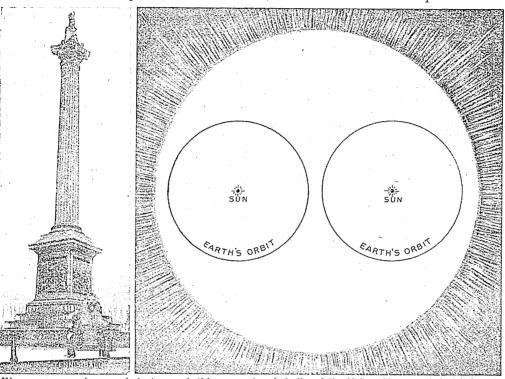
According to the Mount Wilson-astronomers, who have some of the finest astronomical and mathematical instruments in the world, the universe to which our Solar System belongs is 5,869,713,600,000,000,000 miles wide. In this sense universe means a great star system forming a kind of stellar island in the vast sea of space.

Now in this universe the biggest single thing must be the greatest of the nebulae, though which this is we are at present unable to say owing to the difficulty of knowing their distances from us. These

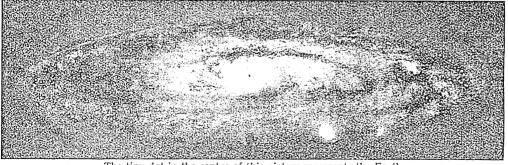
6970

nebulae, which appear in the sky as hazy patches of light, are vast masses of cosmic dust and light gases out of which stars have been and are being evolved. Even if the Andromeda nebula were no farther away from us than the nearest fixed star, it would cover an expanse two hundred

we know, is the giant star Antares, which has been found to have a diameter of between 360 and 420 million miles, as against our own Sun's diameter of only 866,000 miles. The Earth's orbit round the Sun is 186 million miles in diameter, so that the Sun could be placed in the



We can compare in our minds two such things as a tennis ball and the Nelson Monument, but it is not so easy to imagine the size of bodies in the heavens. On the right is seen the giant star Antares compared with the Sun and the Earth's orbit round the Sun.



The tiny dot in the centre of this picture represents the Earth as it appears in comparison with the nebula of Andromeda.

times as great as the diameter of our whole Solar System, which is about 5600 million miles wide, but as nebulae are more distant than the nearest stars their size must be inconceivably vast.

Apart from these stupendous nebulae the biggest object in the universe, so far as very centre of Antares, and the Earth could revolve round it in its present orbit, and there would still be 120 million miles all round this orbit inside the giant star. Or, to put it in another way, two orbits such as the Earth's path round the Sun could be placed side by side inside Antares.

#### What Was the Holy Grail?

The Holy Grail was the cup from which our Lord and the Apostles drank at the Last Supper. According to an ancient legend, Joseph of Arimathea, the rich man who buried Jesus, preserved the cup, and after his death it was brought to Britain by his son and some companions, who sought to convert the ancient Britons to Christianity. The cup was kept, for safety, in a remote place, traditionally supposed to be Glastonbury, the famous monastic retreat in the midst of the fens of Somerset. It could only be properly safeguarded by men of perfect purity. To the impure it became invisible. In this way it was lost, and then began the search for the sacred relic, which forms the subject of several medieval poems. According to Wolfram von Eschenbach, in the most widely accepted German version, Parsifal only was pure enough to find the Grail and undertake its guardianship. Tennyson's Idylls of the King represent Parsifal (Percivale) and Sir Galahad as seeing the Grail clearly, and Sir Bors as having a fleeting glimpse of it. None of the poems bring the famous legend to a definite ending.

# Why is the Acanthus Leaf Used So Much in Building?

The reason is that, as was realised long before the Greeks became foremost in architecture, the beauty of the leaf made it inevitably a basis for ornamentation. The Greeks specially applied it to the decoration of the top of their Corinthian pillars, with admirable delicacy and variety, and in consequence it has held its own as an art form. The Romans used the acanthus with much less ease. It degenerated and almost disappeared in the architecture of the Middle Ages, but reappeared during the Renaissance, and has been used in some comparatively modern buildings.

#### Who is Punch?

Punch, the hump-backed, hook-nosed puppet whom we know through Punch and Judy shows, is really a very old character. He is a descendant of the clown, or Pulcinella, of Neapolitan comedy, the part having been probably created by an actor called Silvio Fiorillo about 1600. From Italy Punch soon came to France as Polichinelle; and he became popular in England as Punchinello about the end of the seventeenth century. Punch is merely an abbreviation of Punchinello.

#### What is the Hitopadesa?

The Hitopadesa, or Book of Good Counsel, was the first Sanskrit work to be printed in what was called Devanagari, the method of writing Sanskrit employed by Europeans. It is at least 500 years old, and its importance lies in the fact that it is really a summary of stories and fables from the famous Panchatantra, a much larger Sanskrit book which was the original source of many of the folk-tales of Europe. The Hitopadesa was translated in 1787, and was printed at Serampore in 1803.

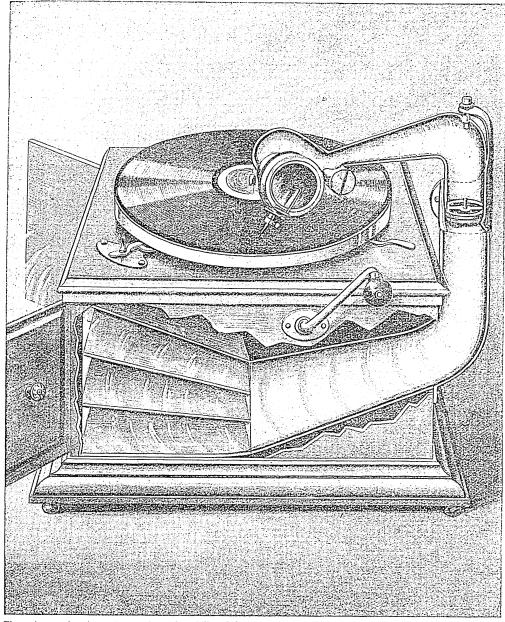
## What Was the Search for the Golden Fleece?

The tale of the Argonauts who sailed to Colchis on the Black Sea in quest of the Golden Fleece is told in Kingsley's Heroes. They were so named from the name of their 50-oared ship Argo, and their leader was a Thessalian prince called Jason, who had been deprived of his rightful throne by his brother. After many adventures they arrived at Colchis, but the king, Aetes, imposed three almost impossible tasks on Jason before he would permit him to take the Fleece. First he had to tame two fire-breathing oxen and plough a field with them; then to sow a dragon's teeth and kill all the warriors who sprang from them; and finally to kill the dragon which guarded the Fleece. All these things Jason did with the help of Medea, the daughter of Aetes, and they eventually fled together, taking the Golden Fleece with them.

#### Who was Joseph Hansom?

Joseph Hansom was a native of York, born in 1803. He was educated for an architect, but though he designed Birmingham Town Hall, it is not in connection with any magnificent building that we remember his name and keep it in the dictionary. He soon turned his attention to the improvement of vehicles, and in 1843 he designed a new sort of cab, which came to be known as the hansom cab. original vehicle consisted of a square body, with two wheels as high as th vehicle itself. Numerous improvements were made, until at last the cab had the pattern and appearance of the "hansom" cab which was a familiar sight in London before the coming of the taxi-cab, but is now rarely seen on the streets and is taking its place in museums. Lord Beaconsfield used to call it "the gondola of London."

### HOW THE GRAMOPHONE WORKS



These pictures show how a box can be made to talk and sing. A record of a voice has first been made by somebody singing into a gramophone horn. The voice makes waves in the air, which vibrate a diaphragm, and a needle attached cuts out a wavy line round a revolving wax disc, the waves varying with the notes. A hard vulcanite record is then made from the wax disc, and when we put this on the gramophone the process is reversed and the voice is reproduced.



When the gramophone is wound up, a clockwork arrangement keeps the record revolving, and the gramophone needle, moving in the wavy line, vibrates the disc of the sound-box so that waves in the air are set up corresponding exactly with the waves of sound made by the singer. Here the needle is passing along the wavy line, both being greatly magnified.

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#### WHAT ARE LOGARITHMS?

L ogarithms are a series of numbers representing, or used in the place of, other numbers. They make it possible for long and tedious calculations to be done with great rapidity by substituting the addition and subtraction of logarithms for the multiplying and dividing of the

numbers they represent.

They are an invention of the time of Shakespeare, and we owe them to John Napier, Baron of Merchiston, near Edinburgh. Used in all the higher calculations of advanced mathematics, they are of inestimable value, and their invention has been described by a great authority as "the noblest conquest ever achieved by man." La Place, a name second only to Newton's in modern science, said of Napier that, "His name will never be eclipsed by anyone more conspicuous or his invention superseded by anything more valuable." Without logarithms few of the great and marvellous discoveries of modern astronomy or physics could have been made.

Logarithms are partly a discovery and partly an invention. Napier arranged a series of numbers in *geometrical progression*, which he called anti-logarithms, and then, corresponding to them, a series of numbers in *arithmetical progression* these being called logarithms, and he found that by adding together two logarithms the result was the logarithm of the product of two anti-logarithms represented by the logarithms.

A series of numbers is said to be in geometrical progression when each is derived from the preceding number by multiplying by a constant factor. Thus 2 6 18 54 162 and so on, are in geometrical progression because 6 is 2 multiplied by 3, 18 is 6 multiplied by 3, 54 is 18 multiplied by 3, and so on. A series of numbers is said to be in arithmetical progression when the numbers increase or decrease by a common difference. Thus I 3 5 7 9 II I3 are in arithmetical progression, the difference between successive numbers in the series being two in each case.

Now, if we take a series of figures in geometrical progression, and place under it a series in arithmetical progression, we have a simple set of anti-logarithms and logarithms, thus:

I 2 4 8 I6 32 64 I28 256 0 I 2 3 4 5 6 7 8

Suppose we now wish to multiply 32 by 8. Instead of doing this in the ordinary way, we add together the logarithms of

those numbers, found in the bottom line, 5 and 3, which give 8, and then we look for 8 in the table and find that its antilogarithm in the upper line is 256, which is the product of 32 multiplied by 8. Of course for such small and simple calculations we do not need logarithms, but when dealing with large numbers the amount of time saved by Napier's invention is incalculable.

A modern astronomer, for example, could better spare his giant telescope with which he explores the nearest planet or the misty Pleiades, than the tables of logarithms which enable him to compute stellar distances bewildering in their immensity.

The logarithms, as originally invented by Napier in 1614, were soon improved, he himself having much to do with the improvements. Any base may be taken from which to work out a table of logarithms, but for convenience 10 is used, and the logarithm of 10 is 1. Then the logarithm of 100 is 2, of 1000 is 3, and so on. The logarithm of I is o, and obviously any number between I and IO must have for its logarithm a number between o and I. In the working out of these logarithms and the compiling of tables of logarithms and anti-logarithms, great industry and patience have been expended. Henry Briggs, a friend of Napier who helped to improve the logarithm system by using 10 as the base, calculated the logarithms of all numbers from I to 30,000, and by 1628 the logarithms of all the numbers up to 100,000 had been computed. Since then many computers have revised the tables to obtain greater accuracy.

It must be understood that the logarithms of most numbers have decimal fractions which cannot be represented completely, and so an approximate value is found by working out the logarithms to several decimal places. There are tables of logarithms worked out to four figures, five figures, and so on, the extra figures giving greater accuracy, but being more difficult and complicated to use. Thus the logarithm of 200 to five places of decimals

is 2.30103.

This brief description of logarithms simply shows the principle of this astonishing invention, but, as used in higher mathematics, logarithms are very complicated and too difficult to explain here. There are, for example, in addition to the common logarithms, a more elaborate series used in very abstruse mathematical

and astronomical calculations. In these the base is not 10 but 2.71828..., spoken of as the base e, and that was Napier's original base for common logarithms. All kinds of calculations, besides multiplication and division, can be worked out by logarithms. The word itself is made up from two Greek words and means the number of the ratios.

#### How is Easter Fixed?

In early times all countries did not keep Easter on the same date. The churches of Asia Minor celebrated it on the same day as the Jews kept their Passover, while the Churches of the West, remembering that Jesus rose on a Sunday, kept Easter on the Sunday following the Passover day. Various attempts to reconcile these two practices failed, and then the Council of Nicaea passed a decree that everywhere the great feast should be observed upon the same day, that day to be the Sunday following the Jewish Passover. To prevent further disputes, four rules were laid down for the fixing of the date.

It was decided that March 2I should be regarded as the Spring Equinox—the time in spring when day and night are equal; that the full Moon on that date, or the next after that date, should be taken for the full Moon of the Passover month: that the Sunday following full Moon should be Easter Day; and that if the full Moon happened on a Sunday Easter should be the Sunday after. This plan has been observed ever since, and by it the date of Easter is fixed.

In carrying out the arrangement for the fixing of Easter various difficulties have arisen during the centuries owing to the fact that the moons do not correspond exactly with the calendar. A series, or cycle, of 19 years has therefore been taken and numbered from I to 19, the numbers being known as Golden Numbers. Then to each of these years has also been given a number which is the age, reckoned in days, of the Moon at the beginning of the year. The numbers in this second series are known as Epacts, and from the Golden Number and Epact the full Moon for deciding the date of Easter in any year may be worked out.

It is curious that in arranging the date of Easter according to rule, the Spring Equinox is a calculated date and not the actual Spring Equinox; the moon referred to is not the actual Moon shining in the sky, but a mathematically calculated

moon; and full Moon does not mean a complete circular Moon, but a supposed full Moon according to certain averaging over a course of years. All this is due to the imperfections of the calendar, which never corresponds exactly with the real movements of the Sun and Moon.

By means of the Golden Number and the Epact, which can always be found set forth in any good almanac, a clever boy or girl can work out the date of Easter for any year. The earliest date on which Easter Sunday can fall is March 22, but that will not occur till the year 2285, and the latest possible date is April 25, which will next fall in 1943.

The reason 19 years are taken to form a cycle for reckoning the Golden Numbers is that after nineteen years on a given day of the month the Moon is approximately in the same position in the sky as it was nineteen years before, so that nineteen forms a complete series.

#### Is Greenland a Green Land?

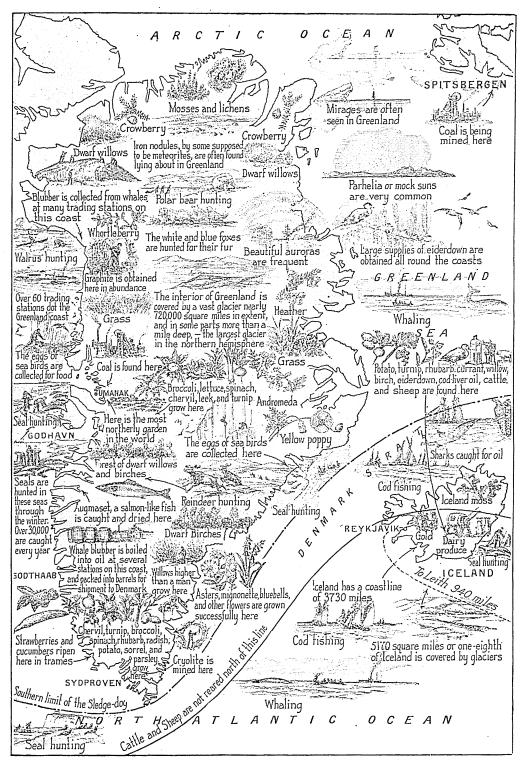
Never has any country been more inappropriately named than Greenland, which should have been called Iceland, for, except a narrow strip around its coast, it is a land buried under a vast, deep cap of ice which never melts away. Its little south-easterly neighbour, which has the name of Iceland, deserves it far less than Greenland. Only about a fifth of Iceland is always under ice and snow. We can judge the comparative right of the two islands to be named from their ice by noticing their sizes and the numbers of their people. Greenland is about 21 times as big as Iceland. But Iceland has seven times as many inhabitants as Greenland. There is room for about 95,000 people to gain a living in Iceland between its coast and its central snowfields and glaciers. But the immensely larger Greenland only supports about 13,500 people, mostly fishermen. Iceland is very mountainous, but in Greenland the mountains are covered up with an undulating field of ice, of a thickness that can only be guessed at. The elevation of the interior rises and gently falls between 6000 and 10,000 feet above sea-level. It is this great ice cap, creeping slowly towards the coasts, that breaks off at its edge when it reaches the sea and makes icebergs. But round its coasts even Greenland has a good deal of animal life, and this enables its people to live by hunting and fishing. See maps on pages 6976 and 6977.

### THE ANIMALS OF GREENLAND & ICELAND



AS THIS PICTURE-MAP SHOWS THERE IS NOT A GREAT VARIETY OF ANIMAL LIFE IN GREENLAND AND ICELAND, BUT INTERESTING INHABITANTS INCLUDE THE POLAR BEAR AND THE REINDEER 6976

#### PLANTS AND INDUSTRIES OF GREENLAND



THIS PICTURE-MAP SHOWS SOME OF THE PHYSICAL FEATURES AND PLANTS OF GREENLAND AND ALSO THE INDUSTRIES WHICH HELP ITS POPULATION OF 13,500 TO GAIN A LIVING

#### What was the Ring of Polycrates?

One of the best known stories of Herodotus concerns Polycrates, an exceedingly rich and powerful tyrant of the island of Samos. Above all things Polycrates was famous for his amazing good fortune; so much so that his ally, Amasis of Egypt, began to fear that such unbroken prosperity would excite the envy of the gods. Accordingly he wrote to Polycrates advising him to throw away one of his most valued possessions, in order that he might thus inflict an injury on himself; and, acting on his ally's advice, the tyrant cast a splendid ring into the sea. But a few days later the ring was found inside a fish which a fisherman had presented to Polycrates, so that his amazing luck was still unbroken. Hearing this, Amasis broke off the alliance, and it was not long before Polycrates was captured by his enemies and put to death.

#### Who were the Druids?

The Druids were the priests of the Celtic inhabitants of ancient Britain, Ireland, and Gaul, and their chief strongholds were in Wales, Brittany, and the district of France round Chartres and Dreux. The oak is said to have been one of their chief objects of worship, mistletoe growing upon it being especially venerated, and oakgroves were accordingly their favourite places of assembly. Apparently they had some knowledge of science and philosophy; probably one of their number was elected from time to time to rule over the whole community. The Romans encountered bitter and persistent hostility from the Druids, and practically exterminated them.

### How Did the Flint Get into the Chalk?

Chalk is composed mainly of the chalky shells of little sea animals and plants of bygone age; and in the same age there lived also animals and plants such as sponges and diatoms, which made their skeletons and shells out of silica, one of the most important elements of which the Earth is made up. Flint is a stone made chiefly of silica from the shells and skeletons of these animals and plants; and sometimes, inside the flint, we can actually trace the skeletons and shells of sponges. The flint, then, got into the chalk simply because the chalky shells and skeletons, and the siliceous shells and skeletons accumulated together on the bottom of the Sometimes we find a big flint, or a row of flints, embedded in a mass of chalk,

and the explanation is that the silica flowed through a crevice into a space hollowed out below. This space became filled up with silica from the bodies of sponges and diatoms, and today we find the silica as flint.

## Why is a Road Higher in the Middle?

If a road were not made higher in the middle than at the sides the rain would not drain away into the gutters, but would lie in puddles all over the road, splashing everything and everybody that passed. But the road is not so high in the middle as we may think. Suppose the road is 72 feet wide, the centre of it will be only six inches higher than the sides. That is the way in which the perfect road is constructed. If a road has too great a slope, it is bad for traffic; it causes all the horses and carts to be kept in the centre, and so ruts are worn and the road destroyed by the unequal wear and tear.

# What is the Difference Between Hard Water and Soft?

The difference between these two kinds of water is that the hard water contains certain salts not found in soft water. These salts are almost always salts of lime, which the water has picked up from the earth as it passes through it. Hard water is very good to drink, as a rule, but the objection to it is that it interferes with the use of soap, and is not good for washing purposes. When soap is used with hard water a chemical change occurs, so that the soap is turned into something which does not dissolve in water; whereas soap used with soft water produces something which dissolves in water, and forms a good lather.

## Where was the First House Built in Stone?

It was built 6000 years ago at Sakkara near Memphis, a camel ride from Cairo. There the remains stand by the side of the first pyramid which was raised in Egypt, and which, known as the Step Pyramid, was intended by King Zoser for a tomb. Close beside the pyramid he erected also two chapels, probably as tombs for his queens or the princes of his family. Thousands of years ago these fell in ruins; and Sakkara has been pillaged again and again by generations of builders. But enough of the stones were found where they had fallen to enable the excavator, Mr. Firth of the Egyptian Archaeological Department to reconstruct these first stone buildings that the Egyptians ever built.

#### What is Caste?

Caste is a term for the division of society into clearly marked grades. is most complete in India, but has existed in a less degree in other lands, as in the Patricians and Plebeians in Rome. From remotest history India has had four chief castes—the Brahmin, or priestly caste; the Kshatriya, or warrior caste; Vaisya, or mercantile and agricultural caste; and the Sudra, or artisan and labouring caste. Sudras represent, historically, the black natives who were conquered by the Aryan invasion and became enslaved to the other three castes. These chief castes branch into secondary castes, which represent often special professions or occupations. Outside all castes are the pariahs, or outcast. The system of caste delays social improvement, but to the unambitious and contented it gives a certain degree of easy security. In the West caste exists only as a figure of speech, except in the minds of those who glory in slight social superiorities over others.

#### What is a Ghetto?

In the Middle Ages the Jews in Europe were compelled to live separately from the Christians, and practically every city of note had its Jewish quarter, called the ghetto. These were first started in Italy about the middle of the eleventh century, the name being Italian; but how it arose is not certain. Medieval ghettos were enclosed by walls, with the gates locked at night; Jews were forbidden to leave their own quarter after dark, and on Sundays and holy days. Within the walls, however, they were allowed comparative freedom. The ghetto system endured into the middle of the nineteenth century, but nowadays a ghetto means merely a quarter where many Jews live.

### Where Did the Alphabet Come From?

There are many alphabets in which each character, or letter, is a symbol for a sound or a combination of sounds. New alphabets have to be made to include sounds in languages that have not been written before. Where our own alphabet came from is as yet a question to be settled by learned men when they understand more about the languages in use in very early times around the eastern shores of the Mediterranean Sea. There is little doubt that the Greeks borrowed their alphabet from the Phoenicians, the

people who chiefly carried on the sea trade of the Mediterranean. Did the Phoenicians invent our letters? Some have held that they received them in part from the Egyptians. Others say that the probability is that the people called in the Bible the Philistines found our alphabet, or something resembling it, in use in the island of Crete during the Minoan period, and that the Phoenicians, who were akin to the Philistines, borrowed it from them, and circulated it along all the Mediterranean coasts. It is necessary to have more examples of the writing of ancient peoples round the Eastern Mediterranean, and to compare them, before we can say with confidence how far the Minoans, the Egyptians, and the Phoenicians were concerned in forming it.

# Which Are the Smallest Countries in Europe?

There are four independent European countries with an area of less than 1000 square miles and a population of less than 300,000. These are Luxemburg, Liechtenstein, San Marino, and Monaco.

Luxemburg, adjoining France, Belgium, and Germany, is a Grand Duchy of 999 square miles, with a population of about 265,000, and a capital, Luxemburg, of 45,000 inhabitants. Its neutrality was guaranteed before the war, but the Germans disregarded the arrangement and the reigning Grand Duchess sympathised with them. After the German defeat the Grand-Duchess abdicated, and her sister, the Grand-Duchess Charlotte, succeeded her. This was confirmed by a national referendum. The constitution claims sovereign power for the nation. There is a chamber of deputies numbering 48. A Council of State of 15 members is chosen by the Sovereign. Luxemburg is rich in iron ore, and produces yearly an amount of steel approaching a million tons.

Liechtenstein is an ancient Principality formerly associated with the Holy Roman Empire, lying on the eastern side of the Rhine valley as it approaches Lake Constance. Here reigns Prince John the Second, the hereditary ruler of about 60 square miles of Alpine pasture land, backing his castle of Liechtenstein, in the picturesque little town of Vaduz. The Prince is now old and rules by deputy. Formerly the Principality was attached to Austria, but after the war it demanded complete independence, and now is

commercially joined with Switzerland. The population numbers 11,500. Its popular governing body, the Diet, has 15 members.

San Marino, a little Republic of 38 square miles and 12,000 people, inland of Rimini on the Adriatic Sea, claims to be older, as a State, than any other country. Admittedly it has existed since the ninth century. It is governed by a Council of 60, of whom 20 are elected every third year. The sixty meet twice a year, in April and October, and choose two of their number to be Regents, or Reigning Captains, for six months. When their six months of office is over they cannot be elected again for three years. The town of San Marino has about 2000 inhabitants. The little Republic has a citizen army of 1000 men.

Monaco, a Principality on the French Riviera coast, consists of three adjoining towns with a total population of about 23,000. The towns are Monaco, La Condamine, and Monte Carlo. There is a little harbour. The towns, and their prince, flourish on the million and a half annual visitors who come to see the beaut es of the coast or lose money at the gaming-tables.

Another principality is Andorra, in the Pyrenees (population, 5231), which, though self governed, is under the joint suzerainty of the head of the French Republic and of the Spanish bishop of Urgel.

### What is the Revised Version of The Bible?

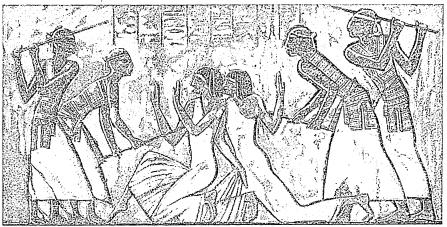
All people in the world today, except the few who can read ancient Hebrew and ancient Greek, must read the Old and New Testaments in translations. At first the Hebrew of the Old Testament was translated into Greek. Then the Greek and the Hebrew were translated into Latin, and the first complete English translation was made from Latin into English. But as time went on other translations were made direct from the original Hebrew and Greek, and greater correctness was More ancient copies of the secured. Scriptures in the original languages were found and studied until, at last, at the beginning of the seventeenth century, it was felt that the best scholarship of Britain should be brought together to make a translation as correct, and as fitly worded, as was possible. learned men of Oxford, Cambridge, and London revised the whole Bible afresh, and it was published in 1611 as the Authorised Version. This translation was

based on earlier English translations. A Bible called the Bishops' Bible was taken as the foundation. It had been published in 1568. But that was a revision of another Bible, the Great Bible, published in 1530, and the Great Bible had been a revision of an earlier Bible known as Matthew's Bible. That, again, had been made up from translations by William Tyndale and Matthew Coverdale. Really, Tyndale's Bible, supplemented by a Bible by Coverdale, was the far-o translation which, revised again and again, made the broad foundation for the Authorised Version. But the 47 translators went back, in all their work, to comparisons with the Hebrew and Greek, in which the Scriptures had originally been written. Also, they had by them the Roman Catholic translation known as the Rheims Version.

The Authorised Version of 1611 was almost universally used by British Protestants for 270 years; but towards the close of this period it was felt that men had now much more knowledge of Hebrew and Greek than the 47 translators who produced the fine Authorised Version. They also had many more ancient manuscripts, from which to secure the best forms of the original text by comparisons. Translations of parts of the Bible were appearing from time to time showing that the Authorised Version did not always express the true meaning of the ancient languages. In short, knowledge had increased, and another revision was necessary to use that knowledge and free the old translation from errors. Accordingly. in 1870, preparations began for forming two companies of learned men, one to revise the Old Testament of the Authorised Version, and the other the New Testament, and a Revised Version was published, the New Testament in 1881, the whole Bible in 1885, and the Apocrypha in 1895.

The Revised Version is obviously the more correct, but the music of the language is less sustained. Many lovers of the Bible feel that the revisers made too many small unnecessary changes, and shirked greater necessary changes by putting them in the margin as alternatives. While the British Revised Version was being produced an American Protestant Revision Committee was doing parallel work in the United States, and the British and American revisers constantly exchanged views and decisions.

The Story of the Beautiful Things in the Treasure-House of the World



An ancient picture of Hittite spies beaten by Egyptian soldiers

# DIGGING UP THE OLD WORLD 2. CRETE, ITALY, SYRIA, AMERICA, AND THE EAST

It was in the island of Crete, whose story has been dealt with already in the History and Art sections of this work, that the civilisation next in time and importance to that of Egypt appeared. It began as far back as the first Pyramid builders and rose and waned in unison with Egyptian art and culture. It had a great period of renaissance about 3000 B.C., and between 2250 B.C. and 1200 B.C. was the centre of a great island Empire which stretched over the Aegean Sea to the mainland where it had considerable power.

Though its history is so old the story of its excavation belongs to the twentieth century. It begins with the search for the relics of a people and an art which were young when Crete was old. Part of the story belongs to the work of Schliemann, who unearthed Troy, and found, though he hardly realised it, the remains of a mighty empire which had been lost. All that was known of it was vaguer than the stories of Homer, nothing more than legends of the Minotaur with the eye in its forehead and the Labyrinth, Minos the King, and Daedalus who sought the sky with uplifted wings.

Today these fairy tales are real. When Schliemann had turned his attention from

Troy to Mycenae the archaeologists began to ask whence this unexampled civilisation had come, for it had no complete affinity with that of the Hittites, its nearer neighbours, or with that of the more distant Egyptians. It was not a Mycenean civilisation, but something wider, perhaps that of the Achaeans who were more widely scattered; and more certainly that of a sea-going people, for the sea continually appears in their art. In 1883 a German writer, Milchöfer, suggested that perhaps Crete was the centre, and in 1886 Schliemann tried to secure the site of Knossos for excavation. He had heard of the discovery of a grotto to Zeus by a Cretan on the south coast. But the Cretans put obstacles in his way, and for some years Knossos and Crete faded from memory.

Then in the nineties of last century Sir Arthur Evans saw some curious seals with figures on them which he announced to be an unknown form of picture-writing. Thereupon he revived the Cretan idea and he declared in 1896 that Crete had been the centre of the civilisation of an island people who had represented Europe in the long struggle against Asia. He was more patient than Schliemann and more successful than he had been with the Cretans, and

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he secured at moderate cost the Knossos area for excavation.

Since 1900 he has uncovered the great dwelling of King Minos, and found not one palace but many, separated by centuries in building and lying one over another.

#### L IFE AS IT WAS IN THE PALACE OF MINOS OF CRETE

We can sit on the King's throne in the great throne room with its tapering pillars and its frescoes of innumerable bulls. We can, as Professor Macalister says, turn over the tablets on which his stewards recorded the household accounts and inventories, though as yet we may not pry into their secrets. Broad stairs lead from court to court, from anteroom to bedroom, or bathroom to light-wells and concert-halls, on one of which is painted a picture of men and women thickly crowded together to watch a performance, the ladies in flounced skirts and low-cut bodices. There are treasure chambers and great cellars stored with jars for provisions. There is a mysterious sunken chamber in which Sir Arthur Evans hints may have been kept some terrifying prehistoric beast—possibly the fabled Minotaur! The palace of Knossos does not stand alone; there are many as strange and beautiful in this island of wonders where we at last see the long-sought origin of the art with which in its later form Schliemann startled the scholars of his day.

Schliemann was the wonder-child of excavation. He was a poor lad who, as he tells in his simple autobiography, began to hear about Hector and Achilles from his father sooner than he could read, and in return wrote for him a Latin essay on them when he was ten! Not for this eager boy was the scientific career he wanted, but a hard apprenticeship in a grocer's shop, where he swept the floor and ground the potato flour and sold butter, salt, and herrings from five in the morning till eleven at night. Not for him the time for study, though he never lost the desire for it, or the love for his old Greek heroes.

### THE GREAT OPPORTUNITY WHICH CAME TO A POOR GROCER'S BOY

A drunken miller who had seen scholastic days once recited the melodious lines of Homer to him, and he was so touched that he presented him with three glasses of brandy one after the other that he might hear them repeated.

He was released from his servitude by an accident that threatened his health, and after vicissitudes which included the wrecking of a ship that was to have taken him to Venezuela; he settled in Hamburg as a clerk, still dreadfully poor but with opportunity, hardly purchased, to study, especially languages. He mastered English, French, Dutch, Spanish, Portuguese, and, hardest of all, Russian; he turned his face against Greek lest it should disturb him too much. At last his fortunes turned, he became rich, and he turned joyfully to his first love.

He was nearing forty but he learned Greek in six weeks, and the man who had been a grocer's boy and was now a prosperous merchant in the Russian capital set about turning himself into an archaeologist. He read everything about Greece he could lay his hands on; he travelled in Egypt, Palestine, and Syria, acquiring Arabic on the way, and visited Athens as a prelude to retiring from business. He spent two years in travelling round the world, and at last, a man in the mid-forties, set out for Ancient Greece, to find the Troy of his dreams and to prove that he was right about its site.

# N INE CITIES THAT WERE BURIED ONE ABOVE THE OTHER

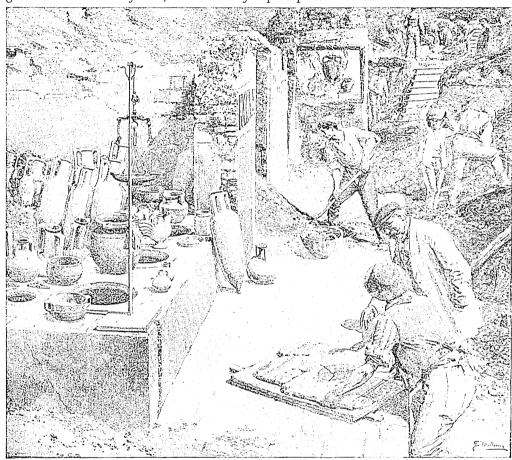
He proved it. Others had asserted that the Troy of Homer stood on the heights of Bunarbashi where the river Scamander enters the plain. But Schliemann chose Hissarlik as the place, and turned the first sod there in 1870. He obtained a grant of the place from the Porte, and put all his faith and the rest of his income in plumbing the spring of history which the divining rod of his mind had discovered. He found more than he sought, for here were nine cities buried one on top of the other; and we know now that he was mistaken in his identification of the actual city he sought for; he believed it to be the second from the bottom whereas it was the sixth. Moreover as excavation was not so careful then as now he destroyed some of the evidence of the past as he cut his way through. But his discoveries startled the world out of indifference and criticism into recognition of the great thing he had done. In 1872 he dug down to a wondrous collection of gold and silver ornaments and jewellery which in his book figures as the Treasure of Priam and is displayed in the engraving "golden diadems, fillets, earrings, silver talents, and vessels of silver and gold," with actually a key of the treasure

#### DIGGING UP THE OLD WORLD

chest. Priam probably never saw them, but their significance to knowledge was unmistakable, and even the Turks saw they were worth something as bullion and made some strong objections to their removal. The prize involved Schliemann in an expensive lawsuit and made it hard for him to obtain permission to excavate again in Turkish territory.

The prohibition was a blessing. It drove Schliemann to Mycenae where again his good fortune stood by him, for misled by disclosed designs of seaweed and shellfish, cuttle-fish and fantasies of the sea. It was an art different from any other known, and it was the examination of it, then and thereafter, when it was found repeated elsewhere and on other materials, that led scholars to seek some country or civilisation from which it had spread across the Mediterranean. That origin was found, as we have said, in Crete.

Of this Schliemann had but a dim perception. It must be remembered that



DIGGING FOR LOST TREASURE IN THE RUINS OF POMPEIL

a word in the Greek historian Pausanias he selected the burial ground behind the Lion Gate in which to dig and there drove down to discover five shaft graves, in two of which the dead were completely covered with gold and the gold vessels were far more numerous and beautiful than those at Troy. Gold dishes with the most exquisite designs, a little gold sanctuary of Aphrodite and her doves, gold cups and golden masks to cover the faces of the dead. Many of the gold ornaments

he was a self-taught seeker and the knowledge he had painfully acquired was not exhaustive or professional like that of his associate Dörpfeld, who first made the architecture of Troy clear, or his friend Sayce, the Oxford professor who revealed the extent of the kingdom of the Hittites. Dörpfeld was at Schliemann's right hand in excavating the Homeric stronghold of Tiryns and had much to do in keeping it from clumsy destruction at the hands of the workmen.

Tirvns is a little gem, a citadel built on a rock and is Schliemann's greatest contribution to an understanding of the heroes who throng the pages of the Iliad. But his most enduring gift to knowledge lay in awakening from its sleep of some four thousand years that Mediterranean civilisation the centre of which proved to be Crete, and which after he had found its first traces continued to reveal itself in every coast of the tideless sea, in Cyprus. and as far west as the shores of Spain. Schliemann was a great friend of England. It was an Englishman, Calvert, who gave him the hint which determined him to excavate at Hissarlik: Savce was a firm friend who at the time of Schliemann's death was projecting a journey with him; and it was the support of W. E. Gladstone's articles which helped towards his recognition by English scholars. But for an unfortunate misunderstanding his priceless private collection would have enriched the British Museum instead of Berlin.

It is now necessary to turn from the ancient civilisation of Crete to those of Syria and Palestine which link geographically the civilisations of Asia with Egypt. It was through Palestine that the wandering tribes from the north reached Egypt and that Egyptian invasion came in contact with a Hittite civilisation quite unexpected by the invaders. Syria still lacks a scientific survey; Palestine has been better served. The first explorer was Seetzen in 1801; he was followed by Burckhardt, who in 1809 found in the Sinai Peninsula the rock city of Petra, "the rose-red city half as old as Time," as Dean Burgon called it, the capital of Edom. The Dead Sea was explored in 1835 by Costigan, who died, as did others who followed him, of Palestine fever.

Tyrwhitt Drake was one of the victims, and it was his death which gave an opening to the young engineer officer who was afterwards known as Lord Kitchener, and who for a number of years surveyed for the Palestine Exploration Fund, having at least one narrow escape from death

#### THE LOST EMPIRE

In north Syria the perseverance of nineteenth-century excavators and scholars resuscitated the lost empire of the Hittites and Amorites, who so troubled Jehoram. Uriah, the servant of David, was a Hittite. Hebrew merchants were the middlemen of the trade between the Hittites and the

during his work. The Rev. Edward Robinson, an American Congregationalist minister whose studies extended over fourteen years (1838-52) first put the geography of the Holy Land on a sound basis. But most of all are we indebted to the work of the Palestine Exploration Fund, whose maps were superseded only by the photographic survey made during the Great War.

Palestine and Syria were the meeting ground on which the two civilisations of the Semites and the Egyptians warred or met to exchange their products; they were the cockpit and the highway of the peoples of Africa and the fertile crescent of Semitic Asia, the region bounded on the north by the Taurus Mountains and the Aramaeans of north Syria; on the south by the Arabs of Arabia, to the east by the Assyrians and Babylonians as far as the Persian Gulf; to the west as far as the Mediterranean, by the Phoenicians, the Moabites, and the Hebrews. But Palestine and southern Syria, as so far excavated, have revealed little that is of value or interest in the more ancient history of the world.

Palestine is disappointing. The most interesting discovery was the Moabite Stone of Mesha, King of Moab, found as long ago as 1868. It was broken in two by the populace to prevent it from falling into the hands of the Europeans. It begins "I Mesha King of Moab," and recounts Mesha's successful revolt against the Israelites. In the tunnel leading to the Pool of Siloam, also in the neighbourhood of Jerusalem, were found some curious inscriptions; there have been a few cuneiform inscriptions, some of which refer to the time when the Assyrians conquered Israel; and at Lachish, where Petrie established the value of Palestinian pottery in fixing dates, were tablets of the time of Egypt's eighteenth dynasty. The most beautiful relic, known as the Alexander sarcophagus, now in Constantinople, was bought by a merchant of Sidon in the fourth century. A picture of this fine piece of sculpture will be found on page 4402.

#### OF THE HITTITES

Egyptians, but the Egyptians had fought them before the time of Elijah, and the Hittites were a great people long before days of the Exodus.

The first notice of this lost empire was due to Jean Otter, in 1736, and nearly 80 years later, when the Rosetta stone of Egypt

and the cuneiform inscriptions of Babylonia were being scrutinised, the writings on the famous Hamath stones, casts of which are in the British Museum, invited attention to an unknown script. Richard Burton had copied them. Dr. Wright, an Irish missionary at Damascus, sent the casts home and was the first to suggest that these were writings of the Hittites; and Professor Sayce was the first to attempt to decipher them.

# THE CUNEIFORM WRITING WHICH BAFFLES THE SCIENTISTS

Savce has told us more of this lost people than any other writer. Their sway stretched far over Asia Minor, and everywhere in that great area they left their sculptures and inscriptions. But we yet cannot read their cuneiform writing. They were a distinct race from the Amorites, a tall and handsome fair people with whom they mingled in the mountains of Palestine, and who are still found there. Hittites were Mongoloids, whose receding foreheads and ugly jaws are pictured as faithfully in Egyptian paintings as in their own sculptures. The Amorites remained in Palestine. The Hittite Empire was to the north, its northern capital at Boghaz-Keui (Khatti) where Dr. Winckler excavated in 1906, and its southern capital was Carchemish, the modern Jarabis, where excavations were made for the British Museum in 1878-81, and again in 1911-20 by D. G. Hogarth, T. E. Lawrence, and C. Leonard Woolley. The Empire was at its height just before the time of Tutankhamen, and from tablets of Tel-el-Amarna we learn that the Hittites were then pressing southward and causing much apprehension in Egypt. The two Empires fought and the Hittites were not worsted. But the long wars of a century exhausted them and so prepared the way for the entry of the Israelites into the promised land of Canaan.

# The figures carved in rock of which herodotus knew

All these things are written in the book of knowledge which first Wright and then Sayce have compiled from the references to the Hittites in Egyptian hieroglyphs, and to a lesser extent in Assyrian cuneiform writings, where the first clear account of the Hittites appear in the annals of Tiglath-Pileser the First, who besieged Carchemish. The Hittite Empire only went down before that of Sargon of Nineveh some seven centuries B.C.

Savce's share in the first discoveries of Hittite sculpture and inscription has been told by himself. In 1879 he went with an escort of Turkish soldiers to see two figures carved on a rock in the Pass of Karabel, near Smyrna, so ancient that Herodotus knew of them and said that Sesostris of Egypt had left them there. These warriors with bows and spears Sayce declared to be Hittite, and the inscription Hittite also. He had been led to this conclusion by an examination of those strange-looking hieroglyphics cut on a stone of black basalt and built into the corner of a house at Hamah. Pilgrims thronged to the bazaar where they were to touch these sacred inscriptions in order to be cured of rheumatism; and there were other stones as venerable. Dr. Wright had persuaded the Turkish Governor, Subhi Pashi, an honest and intelligent man, to remove the stones under a guard of soldiers to Constantinople, and casts were made of them.

# HOW A PROFESSOR FOUND THE TRUTH IN THE PASS AT KARABEL

The casts or photographs were seen by Dr. Hayes Ward, of New York, who perceived in them a resemblance to seal writings found in Nineveh by Layard which were neither Assyrian, Phoenician, nor Egyptian. To Sayce it seemed most reasonable that they were the writing of the Hittites. His supposition was confirmed by the excavations at Carchemish. Another inscribed stone was found at Aleppo, where the inhabitants rubbed it to cure themselves of ophthalmia, but broke it in pieces rather than part with it.

The truth flashed on Sayce. The figures in the Pass at Karabel were not Egyptian, but Hittite. He spent three hours in the niche between the rocks taking impressions of the writing, and with joy was able to confirm his belief. The Sesostris of Herodotus turned out to be not the Pharaoh who fought the Hittites, but a symbol of the far-reaching power of his opponents. Hittite art and Hittite writing, if not the name of Hittite, were proved to have been known from the banks of the Euphrates to the Aegean Sea.

Herodotus must have described the figures from hearsay, for he said they were three feet high. They are more than life size; and the one that has suffered least from usage and time stands high above the path marching towards Ephesus and the Maeander. Not far away another sculpture has been found, a strange figure of a woman carved on the cliffs of Sipylos

near Magnesia, seated on a throne with a lotus-flower on her head and hair streaming down her shoulders. She is the goddess of Asia Minor, the great Cybele. Sayce found one word on the inscription meaning king. The artist who graved it on Mount Sipylos must have learned his art on the banks of the River Nile.

The Amazons were the priestesses of this goddess, whose religion spread from Carchemish with the Hittites. It was a powerful religion, and the priestesses, in places numbering thousands, were armed. Ephesus was dedicated to her, though when it passed into Greek hands the goddess became the Greek Artemis. Sculptures found at Boghaz-Keui depict her in a chariot drawn by lions. Near Boghaz-Keui is Euyuk, where are the remains of a vast palace of stone, its entrance flanked by monoliths of granite carved with Sphinx-like figures and a double-headed eagle, the way being carved with basreliefs as in Assyria.

Carchemish was first identified as the site of the Hittite capital by W. Skene, the English consul at Aleppo; it was visited by George Smith, who read the Assyrian Deluge tablet; and the site was bought by Mr. Henderson, a later Aleppo consul,

for the price of a cow!

The Hittite Empire reached to the Greek colonies and may have impinged on Cyprus, where another unknown script has been found which may have been derived from the mainland or from Crete; but the beginnings of Greek culture were derived from the Greek conquerors of Asia Minor. The sculptured lions at Mycenae, at the Lion Gate behind which Schliemann excavated, were inspired by Hittite art. But the excavations and discoveries in

Greece, made during the nineteenth century, belong to a later age. Of the treasures of art disclosed, the first and greatest were the Elgin marbles, sent to England in 1803 and now in the British Museum as described in another page.

The Greek remains of Sicily, the island richest in temple ruins, were first examined in 1812. In 1820 a Greek peasant, Georgios of Melos, found there in several pieces the wondrous Aphrodite of Melos which now stands in the Louvre at Paris and was first bought for 750 francs. In 1840 Charles Fellows discovered in a rocky peninsula on the south coast of Asia Minor the ancient Greek Lycia; in 1855 Charles Newton, aided by Lord Stratford de Redcliffe (who had sent Layard to Assyria) began the work which added the statue of Demeter at Cnidus to the British Museum. Newton's additions to the collection of Greek sculpture are second only to those of Elgin. He was one of the founders of the School for Hellenic studies as well as of the Egyptian Exploration Fund. French also were interested in the Hittite inscriptions and sculptures, and Napoleon the Third sent Perrot there in the sixties and Henzey to Macedonia. The Russians explored Scythia, which proved to have an art different from that of Greece, though mingled with it. The Winged Victory of Samothrace was found in fragments at Kaballa in the island of Samothrace; the statue by Champoiseau in 1863, the ship's prow twelve years later. These are only a few of the fragments of Greek art which the years have found and the seekers have put together. Delos, Olympia, Eleusis, the Temple at Aegina, Delphi, are among the great names which have received a second birth.

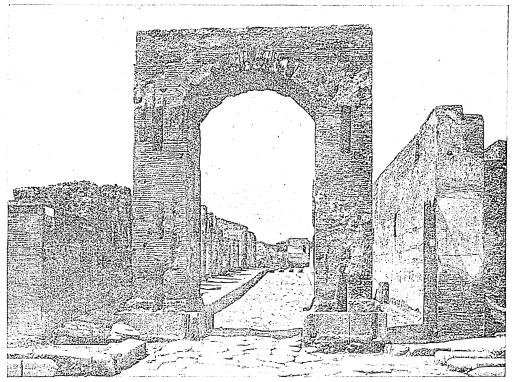
#### THE DISCOVERIES IN ETRURIA AND ROME

Etruria and the Etruscans, who were a powerful people in Italy before the Romans, with a rarer civilisation and art, have a history still mysterious. They invaded Rome. Lars Parsena was one of their generals and a real person, but references to them by Roman or Greek historians are rare or flimsy or contradictory. They had a writing not yet made out; they had forms of burial, discovered in the last century, which put them back to primitive times and usages, and sculptures also found by the nineteenth century excavators which have resemblances to the art of Mycenae, to

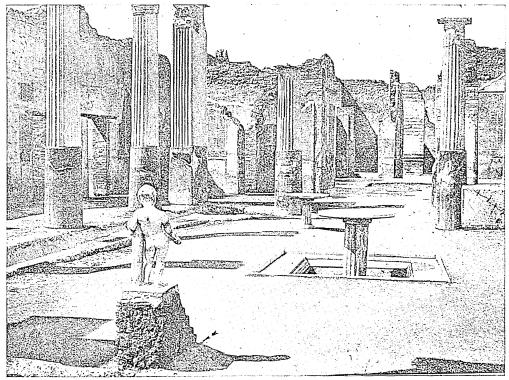
that of Minos in Crete, and to that of the Hittites. Their origin has been ascribed to each of these three civilisations, but of written evidence there is none. The settled opinion seems to be that the first Etruscans came to Italy in 850 B.C. as invaders from somewhere in Asia Minor, probably from the district known later as Lydia.

They may have been racially connected with the Hittites, for many of their tomb sculptures have certain resemblances to Hittite art. Their own art in Italy developed on Greek lines, and that we should expect because the Greeks largely sprang from the same Aegean source. Their first

# LINKS WITH DAYS LONG PAST



THE STREET OF MERCURY IN POMPEIL TODAY

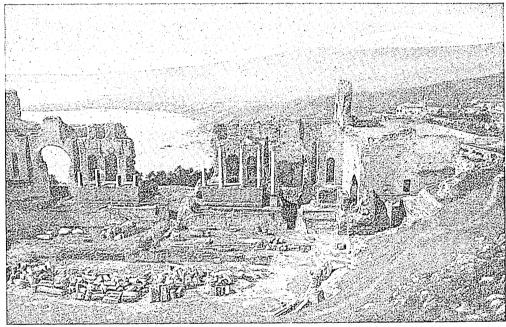


a house in pompeii 6987



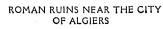
RUINS OF THE SECOND CITY OF TROY

STAIRS IN THE PALACE OF PHAESTUS IN CRETE



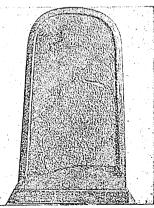
THE ROMAN THEATRE AT TAORMINA IN SICILY





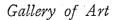


A BEAUTIFUL VASE FROM POMPEII 6988



THE MOABILE

#### Children's Encyclopedia





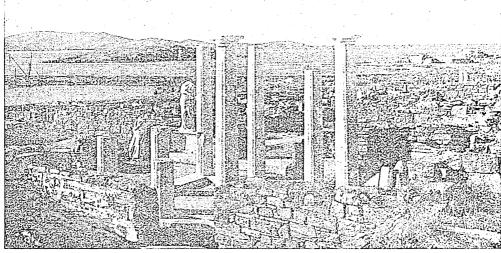
A SCULPTURED BOULDER FROM GUATEMALA



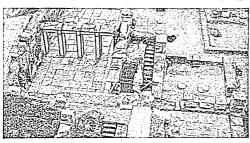
AN ANCIENT VASE FROM CRETE



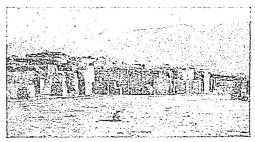
THE THRONE OF MINOS AT KNOSSOS



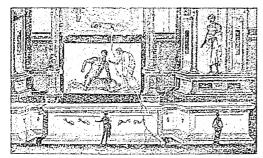
THE PERISTYLE OF THE SO-CALLED HOUSE OF CLEOPATRA AT DELOS



A STAIRCASE IN THE PALACE AT KNOSSOS



RUINS OF THE PALACE OF PHAESTUS IN CRETE



IN THE HOUSE OF THE GLADIATORS, POMPEII



RUINS OF THE WALLS OF ANCIENT ILION

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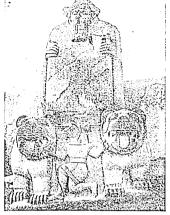
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#### Gallery of Art



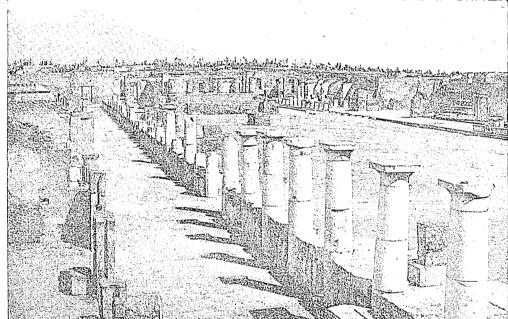
THE ROCK TEMPLE OF ED-DEIR AT PETRA



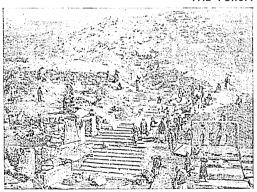
A HITTITE GOD AT CARCHEMISH



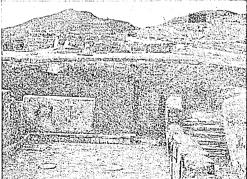
AN ANCIENT MAYA TEMPLE AT YUCATAN IN MEXICO



THE FORUM AT POMPEIL



AT WORK ON THE EXCAVATIONS AT CARCHEMISH



A ROOM IN THE PALACE OF PHAESTUS IN CRETE

#### Children's Encyclopedia

#### Gallery of Art



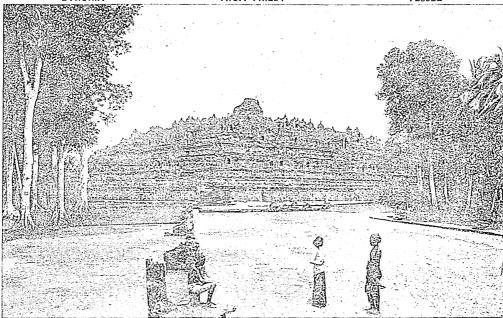
A WINGED FIGURE FROM ETRURIA



AN OLD MAYA GOD A HIGH PRIEST



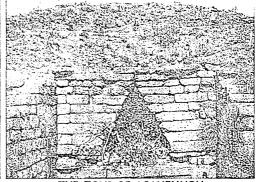
AN ETRUSCAN DRINKING VESSEL



THE ANCIENT TEMPLE OF BORO BUDUR IN JAVA



RELIEFS ON THE WALLS OF ANGKOR THOM AT ANGKOR



THE TOMB OF AGAMEMNON
AT MYCENAE

Some of the pictures on these pages are from Dorpfeld's Troja and Ilion; others are reproduced by courtesy of the E.N.A., Messrs. Burton Holmes, Ewing Galloway, Herbert G. Ponting, and others

settlements were on the west coast, north of Rome, with their capital on the site of the modern town of Corneto Tarquinia. This was in southern Etruria. Later they spread to towns which are now Perugia, Chiusi, Cortona, Arezzo, Volterra, and Fiesole outside Florence, and at all these places their relics have been found. As we have said, they fought with Rome, but they were at last thrust back. They were perhaps not exterminated by war, but by the spreading scourge of malaria, which undermined their vitality. But all that is known certainly about the Etruscans has been found from the excavation of their old cities, such as Marzabotto, which had a wall, paved streets, elaborate houses, fine temples, and a system of drainage; as well as their tombs and the treasures found therein.

The perception of the origins of Etruscan art first arose when Niebuhr, the regenerator of Roman history, became Prussian minister at the Papal Court about 1820. Niebuhr contemplated a work which was to describe the antiquities of Rome, and secured the services of Gerhard, who became one of a band of brilliant young German antiquaries in Italy. Gerhard catalogued the museums, established an international association of all archaeologists, and at its beginning examined the tombs of southern Etruria afresh.

# THE HISTORY OF GREEK PAINTING FOUND IN THE ETRUSCAN TOMBS

Insignificant grottoes were found by him to be filled with the most beautiful Greek vases, many of them painted. In a few months there was found one of the finest collections of vases known; there were vases for storing, mixing, pouring, and drinking wine, and what most stamped them, apart from the astonishing designs painted on them, was their combination of the greatest utility with the simplest form. The painted designs had another value, for by their number and variety they interpreted Grecian mythology, and it became possible by noting the pictorial development to date the origin of vases.

In short, the Etruscan tombs wrote for the archaeological world the history of Greek painting. By comparison with that the identification of old Etruria with a Greek settlement was unimportant. The most beautiful vase of all, the François vase, was found at Chiusi, the old Etruscan capital of Clusium, but paintings came from places as far apart as Pisa and Pompeii. Nor were vases and paintings the only things sought and found; mosaics, jewels, statuary, tombs, and funerary inscriptions and sarcophagi were gathered together. One of the most ardent of collectors was Giovanni Campana, whose passion for the pursuit caused him to outrun his own fortune. His career was one of triumph followed by disaster, for he was prosecuted and imprisoned, his collections were sold for far less than their worth, and he died forgotten and in poverty.

# WHAT THE CATACOMBS IN ROME HAVE TOLD US OF THE EARLY CHRISTIANS

The collecting craze had nevertheless awakened Italy and Rome to a sense of their hidden treasures. The Archaeological Institute in Rome was founded, and it recruited many indefatigable scholars and workers, among whom was Giambattista de Rossi, whose investigation of the Roman catacombs put the history of the Early Christians on a new foundation.

This was one of the many examples of scientific exploration and research which enrich the archaeological study of Rome during the past half-century. Among the chief discoveries was that by De Rossi of the catacomb of Calixtus, in 1862. The excavations on the Palatine begun then continued for eight years. During the period when the ancient hill was being laid bare the temple on the Capitoline was made plain and the House of Livia was discovered. In 1872 the Forum, long used for Roman cattle and sunk in débris, was so far cleared that the reliefs of the tribune could be seen; and three years later the Temple of the Capitoline Jupiter was revealed to the view. ancient house in the Farnesina, the Ludovisi marble throne, the statue of Apollo found in the Tiber are landmarks of discovery, and there are two others in which the careful scholar and the excavator joined hands in discovery.

# THE PANTHEON OF HADRIAN AND THE ALTAR OF PEACE

The first of them was the demonstration by Dressel in 1891 that the great Pantheon did not belong to the age of Augustus, but had been raised in the time of Hadrian, and that it was originally round; and the second was that the famous altar of peace, Ara Pacis, had really come from the Augustan age. In 1903-4 the ground was excavated whence the early fragments of the altar had been found and its marble foundations were disclosed.

#### THE REAPPEARANCE OF POMPEII

Napoleon gave the greatest impulse to the exploration of Egypt and its history, and in establishing in Paris the Musée Napoléon stimulated the search for the treasures of antiquity, though many of the treasures were mere robberies from their rightful possessors. Another member of his family, his favourite sister Caroline, was the most energetic excavator of Pompeii. The discovery of Pompeii was much older; its ruins had been known since 1748, when the mysterious production by Neapolitan peasants of antiquities for sale led to their disclosure. Herculaneum had long before that yielded prizes since the first excavations in 1711, including the wonderful Villa dei Papiri in 1753, where a hundred statues in bronze and marble, as well as the library of its first owner, had been got out. But work at Herculaneum was very difficult, because the lava flung over by the eruption of Vesuvius had hardened to stone, and it was abandoned in 1766. At the end of the nineteenth century the attempt was renewed. Sir Charles Waldstein, of Cambridge, was interested, and the German Emperor offered to find the funds, but nothing of importance came of it.

Pompeii was easier to deal with because its ashes were looser. About 1764 two theatres, the three-cornered Forum with its remains of early temples and the sanctuaries of Isis, were uncovered. The Neapolitans went on with the work in leisurely manner for some thirty years, burying houses again after the spoil had been taken from them, and leaving decorations to decay. At last concerted digging stopped altogether. It was revived in Napoleonic times by Miot, the minister of Joseph

Bonaparte, the new king of Naples, who employed 150 men and spent £900 a year; but Caroline, the wife of Marshal Murat, who succeeded Joseph, put her heart and soul into it, and found employment for 600 workmen. Then were uncovered the solemn Street of Tombs and the Market Place with the colonnade.

Some other temples and the stately Basilica saw again the light of day. The Napoleonic rule went down on the field of Waterloo, but to the credit of the Bourbons they continued the work after Ferdinand re-entered Naples as its king. The two different points of the excavations at the Forum and the Street of Tombs were connected, and the climax of these efforts was reached at the temple of Fortuna Augusta and the baths near the Forum. In 1860 the Italians infused a new spirit into the examination of the city, putting Fiorelli in charge; and he, beginning on the Pompeian houses, was able first to show how and when they were built, and to establish the existence of four distinct periods in Pompeian art, one or other of which shows derivation from Greece or from Egypt. The most important single discovery was that of the House of the Vettii in 1894, with 188 paintings.

It is to be hoped that the excavation of Herculaneum will nevertheless be pursued, for the city differed greatly from Pompeii in character. It was distinctly Greek, while Pompeii shows signs of having been founded by settlers of another race; and it was a centre of the higher intellectual life during the Roman supremacy. Added to this the works of art discovered there were finer than the Pompeiian, and rich stores of manuscripts were found there.

#### DISCOVERIES IN THE FARTHER EAST

Having brought the older civilisations of Europe and the Near East almost to our own doors, it is now necessary to glance at others in the Farther East and in the Newer West, of which we know far less. In India there is nothing to be discerned of the more ancient civilisations of Mesopotamia, Egypt, Crete, or Syria. The earliest things found are coins which date back to the Greek dominion. About 1700 B.C. the Aryan Kassites invaded Babylonia, probably impelled thereto by changes in the climate of Asia, which formed new deserts, and others of the same invaders flowed into India, where they found no old civilisation to adopt, and so set up a less advanced one

of their own. Nothing more emerges till Buddhism and the sainted Asoka emerge in the sixth century B.C.; and Asoka's wisdom, his edicts, and his sayings are the most priceless antiquities of the wide Empire he governed. The later relics of art and architecture, the temples, the shrines, the palaces, the tombs compare with those of the Roman Empire; and the offshoots, the buried temples of Ceylon, the temples and palaces of Angkor, and the great structure of black volcanic stone at Boro Budur in Java, are to be compared with the ruined Roman cities of North Africa.

Farther East is the civilisation of China, which is next in age to that of Crete, and

may have begun before 2000 B.C. It also may have been created by incursion from Persia or Babylonia, but the seed thus planted there found fertile soil and developed in a way all its own. Nor was the seed long in development, and the bronzes, both those which have been discovered and those which were pictured by the early Chinese antiquaries, some of whom published engravings of them about the time of our William the Conqueror, show that in 1600 B.C. the metal work was fine and beautiful. One very curious thing about it is that the ornament resembles that of the Mexican art found among the relics of the Maya people of Yucatan. In the bronzes of a thousand years later this ornament has disappeared; there are long bands of animals and figures in pottery which are inspired by an Indian or a Scythian motive; and later still appear Greek and Roman designs.

But the surface of China has been no more than scratched by the antiquaries. The most important work has been done by Sir Aurel Stein in excavating the buried cities of Khotan in Chinese Turkestan.

The ruins are buried by the sand and preserved by it, and it was here that evidence was found of the spread of Indian and Scythian art to China. Khotan was a little kingdom, an oasis, on the route from the valley of the Oxus to China, and so was a link in the chain from India and the West to the Farthest East. Khotan as a region struggled against the most formidable of deserts, the Taklamakan, and at last the Khotan settlements went down in the fight against its encroachments. But Stein's spade brought to sight a uniform and welldefined civilisation stretching in a straight line for 300 miles. Fine statuary; decorated woodcarving of the Greek and Buddhist style which showed later the influence of Roman taste also, and which flourished in the north-west of India; early Persian influences, as well as frescoes on Buddhist shrines resembling ancient Indian art—all these were found. They are records which do not go back to the earliest times of possible intercommunication, but they are an invaluable proof of the links which existed, and they may be supplemented by yet earlier ones.

#### THE LOST CIVILISATION OF THE MAYAS

When the Spanish conquestadores ravaged Mexico they brought with them no curiosity as to the origins of the Aztecs or their civilisation, but only a thirst for plunder. The blight has not wholly lifted from those lands, but the wonder has grown, and in Yucatan in Mexico, and in Central America to Honduras, antiquaries are seeking the beginnings of a people by the side of whom the Aztecs are modern.

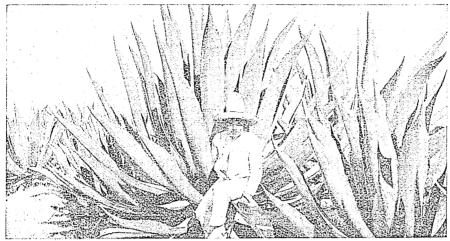
In many parts their traces are found and their history read in potsherds and fragments of brick and stone, in others where the forest, as pervading and intrusive as the desert sands of Central Asia, has hidden temples and sculptured pyramids and palace walls, there is evidence of a people, the Mayas, older than the Toltecs, who were before the Aztecs, whose civilisation may compare in age with that of the Hittites, or of the oldest Chinese, and may be of more ancient origin still.

Professor Niven, who uncovered a library of stone tablets beneath the volcanic ashes which surround but never quite submerged the prehistoric pyramid near Mexico City, believes that these and other early Maya remains can be dated back to 5000 B.C., and speaks confidently of it as a mongoloid civilisation, inferring that it

came from Asia. Whether that fact will influence the dating cannot yet be said, but American archaeology is bending all its efforts to solving the riddle of the Mayan calendar, their tablet writing, their strange sculptures, and their monumental architecture. Whatever they discover, the chief impulse to the finding of the Maya civilisation was given by Mr. A. P. Maudslay, who spent thirteen years of his life, from 1881 to 1894, going seven times to Central America, and making known to the world of scholars a lost people whose works were the highest expression of His reaboriginal American culture. searches included a survey reaching from Chichen Itza in Yucatan to Honduras, and from Tikah to Guatemala City and Palengue in Guatemala.

He made more than surveys, he took moulds of some of the more rare and strange monuments, and from these moulds casts were made and the results given to England, which, after a rather English habit, neglected them and stored them out of sight. Now they have been taken over by the British Museum, and are one of the strange sights of that great storehouse of so much that is as strange as it is beyond all valuation.

#### The Story of the Peoples of All Nations and Their Homelands



An aloe, or century plant, of Mexico

#### LATIN AMERICA

The New World which came within the ken of Europe in the end of the fifteenth and the beginning of the sixteenth centuries is a world which is still in the making, a world where there are still vast tracts untamed by the hand of man.

In the three centuries and a quarter since Columbus first set foot on the Bahama Islands America has grown so great in wealth and power that she almost overshadows the Old World from which those intrepid men who followed in the footsteps of Columbus sprang. But the European adventurers and conquerors took with them their racial and religious differences, and the course of history has made not one but two Americas—the north, Teutonic and Protestant; the central and south, Latin and Catholic.

While the north marched forward by leaps and bounds, and in its course practically destroyed the aboriginal tribes, and developed the countries we know as the United States and Canada, the greater part of Central and Southern America lay for two centuries under the deadening hand of Spanish colonial dominion. That dominion, however, did not destroy the native tribes. The Spaniards went in search of gold and treasure, not to till the

ground, and therefore the native Indians remained, though in a state of subjection; so that today the countries of Central and South America are inhabited by a mixture of races, neither European nor Indian, but Mexican, Peruvian, Chilean, or Argentine.

The conquerors of South America never really opened up the interior of the continent, huge tracts of which are even now occupied only by wild tribes. Nevertheless, the Indian tribes which have not been absorbed are almost everywhere in a degraded state, often without education, and in danger of a further decrease in numbers through disease and drink.

All these Latin-American countries are young countries. Their real development only really began just a century ago, and no one can foretell how great a future lies before them. They are in possession of nine million square miles of the Earth's surface, stretching from the Rio Grande, whose waters divide the plains of Texas from the Mexican highlands, down through the narrow mountainous lands which divide the Caribbean Sea from the wide waters of the Pacific, and through the vast pear-shaped continent which we call South America to the "land of fire," that island of mountain, forest, and cloud which

THE FIVE CONTINENTS & 100 NATIONS & RACES THAT INHABIT THEM

ends at Cape Horn. Thus Latin America begins in latitude 30°, away to the north of the Tropic of Cancer, embraces the whole tropical region, stretching away beyond the 55th parallel of latitude south. The widest part of the continent lies wholly between the tropics, for the Tropic of Capricorn runs just south of the great Brazilian port of Rio de Janeiro.

The modern (what we may call the European) history of this great continent begins, just as many epochs of history have begun, round the narrow necks of land and water in the world, at the Isthmus of Panama, now pierced by that great American artificial waterway which has joined the Atlantic and the Pacific and is itself one of the engineering wonders of the modern world. For the later adventurers from Spain thought, as Columbus had done, that in reaching America they had reached the fringe of Asia and were on their way to the Spice Islands. Keats has put into immortal lines their amazement when they saw on the other side of that fateful isthmus the wide stretches of the Pacific—though we must remember his mistake in saying Cortes for Balboa:

Or like stout Cortes when with eagle eyes He stared at the Pacific—and all his men Looked at each other with a wild surmise Silent, upon a peak in Darien.

## THE MIGHTY SPECTACLE WHICH MET THE GAZE OF BALBOA

It was in fact Vasco Nunez de Balboa who was the first European to stand, in 1513, on that peak and see that mighty spectacle. We do not know what height this was—certainly not the Balboa Hill marked on our maps today; but Balboa marched across the isthmus, strode into the sea, and with drawn sword claimed the Pacific on behalf of the King of Castile and Aragon. Four years later, on March 4, 1517, a Spanish sailor touched at Yucatan; and a year later Cortes sailed for Mexico from Cuba, roused the subject peoples of Mexico against their Aztec rulers, and on Tuesday, November 8, 1519, entered the city now known as Mexico City. The vast treasure which the Spaniards found there, though the royal treasure was thrown into the lake and lost, during the two years that followed, inspired the Spaniards to further conquests. Mexico became "New Spain."

Pizarro made his first hazardous and dangerous voyage on the unknown dangerous western coasts of America in 1527,

when he reached Tumbez, lying to the north of Cape Blanco. He returned to Spain to tell of the El Dorado, the golden country, which he had discovered, and received the commission for the conquest of Peru, which he carried out with such brilliancy of conception, such daring in execution, such disdain of hardship and danger, and, alas, with so much treachery and cruelty.

## PIZARRO'S CONQUEST OF THE ANDES

His second landing was in 1531, with a tiny force of 183 men and 27 horses, and in two years he had scaled the mighty natural fortress of the Andes and taken the Inca capital of Cuzco, the City of the Sun. Thus the great colonial empire of Spain in South America was founded, and to the end the Peruvian city of Lima, founded by Pizarro, was the centre of the Spanish government of South America, and the seat of the viceroy.

The stories of the conquest of Mexico by Cortes and of Peru by Pizarro are two of the most heroic and marvellous episodes anywhere to be found in modern history. They are told elsewhere in this book, and at length by Prescott in his two books The Conquest of Mexico and The Conquest of Peru, which must be read if we want to study the beginnings of modern history in Latin America.

Cortes and Pizarro were not the only Spanish heroes among the Conquistadores, as the Spanish conquerors were called. There were Sebastian de Benalcazar and Ximenes de Quesada, who conquered the country between Panama and Peru; Diego de Almagro and Pedro de Valdivia, who occupied Chile; and Pedro de Mendoza, who founded the first Spanish settlement at Buenos Aires in 1536. Meanwhile Portugal brought Brazil, or at least the coastal districts of it, into subjection; the Portuguese sailor Cabral had sighted the land as early as 1500, and taken "possession" in the name of his monarch.

# EXHAUSTED TRAVELLERS DRIFTING HELPLESS DOWN THE AMAZON

By 1550, in the short space of about 20 years, the vast continent of South America was appropriated by a handful of soldiers for the Spanish and Portuguese monarchs.

Some rough idea of the geographical situation was now available, for in 1520 Magellan had sailed through the Straits of Magellan into the Pacific, and the world knew that America was a continent far

distant from the Indies. In 1541 Francis Orellana made that marvellous voyage through the dense tropical forest from Peru down the head waters of the Amazon. Fifty sick and weak men failed to keep in touch with the stronger members of the party, who were marching on the banks on the way from Quito to the Rio Napo. So Orellana and his men could do nothing but let the rafts drift on, day after day, through the forest and its enchanting wonders, getting what food they could, till, in seven months time, they reached the ocean, and a little farther north found a European settlement. The story of that journey is perhaps the greatest exploring story of the world.

### THE SOLITARY MONUMENT TO A SPANISH EXPLORER OF OLD

Hardly less adventurous was the expedition of Quesada on the Orinoco in 1537. Though avarice and cruelty marked the conquest it remains a marvellous achievement. Perhaps because of the stains upon it the Spanish Americans of today do not seem to hold the founders of the new colonies in any special honour, and we believe that to only one of them, Pedro de Valdivia, is there a monument in the street of a South American city. That monument stands at Santa Lucia, just above the Chilean capital of Santiago.

What sort of people and what sort of government did the conquerors find? In Mexico and Yucatan, in Honduras, and other parts of Central America they found the remains of great cities belonging to an older Maya civilisation of great antiquity, the date of which is not yet satisfactorily The massive remains of those settled. buildings of great stones hewn not with iron (for iron tools were still unknown in America when Europeans set foot there), but with stone tools, and ornamented with fantastic carvings and hieroglyphics, have no parallel for massiveness, not even in Egypt, in the Old World.

## THE CRUEL RELIGION OF THE AZTECS OF MEXICO

There was also, in Mexico, the Aztec civilisation, highly organised in military matters, in religion, and in education of a kind, but having for its foundation a religion perhaps more bloodthirsty and cruel than any the world has seen. On its altars animals and men were sacrificed with every refinement of cruelty, and cannibal feasts completed the ceremonies on high feast days.

The conquistadores of Peru found the highlands of the Andes and the country as far down as Chile under the rule of the Incas, the Children of the Sun, whose empire had then lasted for about 300 Theirs was a despotic rule, but gentler and more advanced in the ordinary arts of life than the Mexican. The great temples and palaces of their cities were also built of mighty hewn stones, put together without mortar, but so exquisitely balanced and shaped that the great Inca walls still form the foundation of the These places were streets of Cuzco. adorned with quantities of gold and silver exquisitely wrought. Indeed, from Mexico and along the whole coast the Spaniards found wonderful gold and silver work, and never succeeded in discovering how the work had been accomplished with the appliances at the disposal of the people. The Incas had, like the Aztecs of Mexico, succeeded a still older civilisation of great builders, the remains of whose work are still to be seen at Tihuanacu and other places in Peru and Bolivia. They made great roads over the mountains with marvellous flying bridges over the deep gorges; they terraced the side of those gorges so as to grow roots and grain wherever irrigation was possible in that arid land; and if they kept the people in subjection they also maintained them in prosperity.

#### THE LAND BRIDGE BY WHICH MAN MAY HAVE REACHED AMERICA

The Incas were held in more reverence by their subjects than any rulers have ever been, and faint recollections of their greatness linger among the Indians today.

The invaders both in North and South America found a thinly-peopled continent; otherwise the conquest would have been much more difficult. We do not know at what era the Indian tribes which inhabit America first made their way from Asia to the continent or if they were there from the beginning. Some people think they came from eastern Asia in the first instance, for, whether the tribes are tall or short, long or broad-headed, they approximate more closely to the inhabitants of eastern Asia than to any other type. They may have come across while there was still a land bridge between Europe and Asia in the far north, or they might have crossed by way of the Aleutian Islands.

The Aztec and the Inca civilisations extended over only a part of the whole

area. The great majority of the Indians lived, as they live today, in the simplest fashion. In the Gulf of Maracaibo and on the Amazon and Orinoco rivers there are still lake dwellings, perched on lofty piles standing in the water. They are reached by canoe, and the ladder is a notched tree trunk. The ordinary forest house of the Indian of the north has open sides and a sloping roof thatched with palm leaves and reaching almost to the ground; it is more a shelter than a house. The Indian hut of the plains is round or oval, with thatched roof and wall built of wattle and plastered with clay.

## THE INDIAN WHO LIGHTS A FIRE UNDER HIS HAMMOCK FOR WARMTH

The Brazilian tribes differ very much in their degrees of skill and culture. Many of them have no better habitation than a miserable bamboo structure, but the oblong shelter is the rule, with a couple of separate huts for sleeping and cooking. Some Brazilian huts have bunks, but the hammock, which seems to have been invented by the Guiana Indians, has been introduced practically throughout the continent. The Indian of British Guiana will sometimes light a fire under his hammock by way of protection against the chills of night! In some districts the Indians live under good conditions, and are educated and well-to-do members of the community; but conditions vary from State to State and from province to province. In Paraguay the Indians form the bulk of a well-organised community with land and houses of their own; in Brazil, where slave raids persisted until comparatively recent times, many tribes are still uncivilised. Generally the Indian is polite and hospitable, but the remote districts of the Amazon still harbour some cannibal tribes.

## DRAKE'S ADVENTURES WITH THE SPANIARDS OF SOUTH AMERICA

It must not be thought that the Spaniards and the Portuguese had it all their own way in the sixteenth century, and were unmolested by their European rivals. French corsairs from St. Malo harassed the Spanish fleets, and French Protestants tried to make a settlement in Brazil. The Dutch long contested Portuguese supremacy in Brazil, and English gentlemen adventurers, openly or secretly assisted by Elizabeth, hung on the sea-routes waiting for the Spanish treasure-ships. Francis Drake landed on the Isthmus, took

Nombre de Dios, and ambushed the mule trains carrying Peruvian silver to Panama: and in 1578 he sailed through the Straits of Magellan and laid waste the coasts of During the short formal war Peru. which began in 1585 he ravaged the Spanish Indies, and captured Cartagena. Raleigh and others sought to make settlements in the fever-haunted districts of the Orinoco, and eventually the English. Dutch, and French established themselves in Guiana. For thirty years in the seventeenth century the Dutch fought for the possession of Brazil, and France attacked Rio in 1710.

But generally, from Mexico downwards, the Spaniards and the Portuguese held dominion except in the recesses of the inaccessible forests where even today the wild tribes still stand outside the law. Neither Spaniards nor Portuguese had the racial antipathy to the dark man which prevents English colonists from intermingling with the natives of the places where they settle. The colonial governors assigned tracts of land to their soldiers and to settlers from Spain, and these in many cases intermarried with the Indian population.

## THE STRANGE MIXTURE OF PEOPLES IN CENTRAL AND SOUTH AMERICA

The Mexican nation of today is a Spanish-Indian nation; the Brazilians are Portuguese-Indian stock with some Negro admixture, those Negroes brought in many cases from Africa in English slave-ships; in Argentine and Uruguay the population is of Spanish-Indian, Italian, German, and English stock. The Spanish colonial families which have no Indian blood are very few anywhere. Paraguay, alone of all the States, is almost purely Indian, with a small admixture of Spanish blood.

But if you take the whole of South America there are still vast areas in which you may go for miles without finding a human habitation. There are no really reliable figures of population, but there may be in South America today 66 million people, or in the whole of Latin America, including Mexico and the central republics, perhaps 90 million. These consist of pure Îndians, Negroes (in Brazil), mestizos (mixed European and Indian blood), mulattos and quadroons (mixed European and Negro blood), Spanish and Portuguese colonists, descendants of families long settled in America, and new-comers from Italy, Germany, Great Britain, and Spain.

A Spanish chronicler says that the Chibchas of Bogota (now Colombia) numbered nearly a million at the time of the conquest, and were almost exterminated in twenty years. The number of Indians in Peru and Bolivia was reduced from eight to four millions in two hundred years of Spanish rule. The natives of northeastern Brazil who were not enslaved were practically exterminated at the end of the sixteenth century.

#### THE HORRORS CHARLES DARWIN WITNESSED IN THE ARGENTINE

Charles Darwin, who was in Argentina in 1832 at the time of an expedition by General Rosas against an Indian rising, tells of the slaughter which accompanied its repression. Many Indians perished in the hard toil in the mines and on the land to which their masters put them, and in our own times the tribes on the Putumayo suffered from the severities of the rubbergatherers; but the agents which tend to thin them out today are strong drink and the diseases they may take from the white man. Everywhere they brew intoxicating drink, from maize, sugar-cane, and other plants. The important fact to remember is that though Spanish rule was corrupt, intolerant from the religious point of view, and a barrier to development because of the strict trade monopoly with Spain, it did not completely destroy the native peoples. Some of them were absorbed; those who remained Indians received, not education, but a simple form of Christianity.

Above all, Spanish rule gave the continent a common language, Spanish, so that the Colombian or the Mexican can understand the speech of the Chilean or the Argentino. The Portuguese language used in Brazil is so near as to be intelligible. So it is that South and Central America, in spite of all divisions, are in a sense one: they are not plagued by a dozen different and incomprehensible languages as Europe is. The mestizos speak Spanish or Portuguese, and every Indian who becomes educated learns one or the other.

#### THE GOOD FRIENDS OF THE INDIANS WHO WERE DRIVEN AWAY

Latin America has not the "colour" question in the same acute form in which it is known in the United States, in South Africa, in Uganda, and in India. But centuries of oppression have left the Indians reserved and impassive, and they have never had equal opportunity with the whites. Their best friends in Spanish

colonial days were the Jesuit missionaries, who sought to raise the level of their culture; but jealousies led to the expulsion of the Order. In Paraguay they taught colonies of Indians to make rich and prosperous settlements where they grew all kinds of grain, tobacco, sugar, and yerba maté, the Paraguayan substitute for tea, and kept herds of cattle and sheep. When they were driven out the settlements fell into decay, and progress was put back for over half a century. Here and there European Protestant missions carry on the same work. One Peruvian English mission is a colony of 600 Indians who produce all that is necessary for the little community.

We must now look at those divisions which gradually arose by the necessity of parcelling out the great areas into provinces, for there were no railways over the great plains and impassable mountains, and no reasonably rapid means of communication. This is the list of the divisions today with their areas in square miles:

# HOW LATIN AMERICA IS DIVIDED INTO SEVERAL COUNTRIES

I. Mexico, shorn of the provinces lost to the United States, 768,000 square miles.

2. The Central American republics of Guatemala, Honduras, Salvador, Nicaragua, Costa Rica, and Panama, with the British colony of Honduras. (In all about 215,000 square miles.) In Panama a small strip on each side of the great canal is the property of the United States for defensive, sanitary, and other reasons.

3. The northern States of South America, Colombia (440,846 square miles), Venezuela (398,594 square miles), Ecuador (276,000 square miles) and the three Guianas—British, Dutch, and French (170,000 square miles).

4. The Andean republics: Peru (722,000 square miles), Bolivia (514,000 square miles), and Chile (290,000 square miles).

5. Brazil (3,291,416 square miles).

6. The three republics of the great southern plains: Paraguay (110,000 square miles), Uruguay (72,210 square miles), and Argentina (1,153,000 square miles).

In the last years of the eighteenth century the Spaniards began to improve their methods, and above all they withdrew, under English compulsion, their veto on trade through the River Plate, the great estuary of the Paraná and the Uruguay, and the principal route, indeed the only one in those days, into the plains of the centre. They still appointed new-comers from Spain to the higher offices, thus arousing great discontent among the colonial Spanish aristocracy. But the Spanish concessions came too late. The power of the Spaniards in Europe was shaken by Napoleon's conquest of Spain, and revolt against their rule blazed up all over Central and South America.

Napoleon was the real Liberator of South America. We cannot tell here the history of that great struggle, nor of the national heroes who freed Latin America from foreign dominion in the years between 1800 and 1826. There was San Martin, who led the revolution in Argentina and conducted the Army of Liberation in 1817 across the lofty pass over the Andes into Chile, now pierced by the railway; Bolivar, who delivered the northern republics, together with Peru and Bolivia, and is honoured in all four countries for the purity and disinterestedness of his action even more than for his military achievements; Hidalgo, Morelos, Yturbide, and the unscrupulous Santa Anna in Mexico; Francia, the tyrant of Paraguay; and a host of others, among whom we find some of Irish and English birth, notably O'Higgins in Chile.

## THE LONG YEARS OF TROUBLE

The course of history in Mexico was much more complicated than that of the South American States, partly because its territory ran side by side with the United States, to which Mexico had to yield Nevada, Arizona, New Mexico, and Upper California. Then there were long civil wars, and in later years intervention by Spain, England, and France, when Mexico suspended payment of her foreign debt. France took separate action after the first two Powers had retired, and established on the throne of Mexico the Archduke Maximilian, a son-in-law of King Leopold of Belgium. He was Emperor of Mexico for four troubled years between 1864 and 1867. In 1867 the United States Government told France plainly that her army must be removed, and that they would recognise no Government in Mexico but a republican one. Maximilian was foolish enough to remain, and was shot by the Republicans on June 19, 1867.

Brazil, too, only gained real independence after a long and chequered struggle between conflicting factions within and

with neighbouring States throughout the years from the Declaration of Independence in 1822 to the final abdication of the Portuguese dynasty and the Declaration of the Republic in 1889. Even after this long period of war and revolution, when the republic was established, disorders and local risings have made progress in Brazil very slow indeed.

## The historic declaration which gave Latin america its chance

Generally speaking, the Latin-American States had the sympathy of the United States and of England in their fight for freedom. England was sympathetic because of her anger with Spain. In 1823 the absolute power of the Spanish king was restored by French arms, and England thought that France once more was making a bid for world power, and she threw her great influence and her naval strength on the side of the revolted colonies. "If France has Spain," cried Canning in a famous speech, "at least it shall be Spain without the Indies. We have called a new world into existence to redress the balance of the old." On December 22, 1823, President Monroe of the United States made the historic declaratiou that no part of America was henceforth open for colonisation. The Monroe Doctrine has come to mean that, while existing European colonies will be respected, the United States, vastly more powerful than the younger American States, will not allow European domination of any existing independent American country. This, with Canning's declaration, gave Latin America its chance.

#### THE SUCCESSION OF REVOLUTIONS WHICH HELD BACK PROGRESS

The new republics did not quite satisfy their more enthusiastic supporters in the United States and England They had adopted democratic institutions in countries where a great proportion of the population were and are absolutely illiterate, and in States where the great body of the citizens were Indians, with no inkling of the meaning of the vote, but who were prepared to fight when required to do so. The result was a succession of revolutions made by ambitious dictators, elections faked by the military party in power, wars between the States, and a general state of chaos from which orderly government only evolved later.

Tropical America, it was said by supercilious observers, had two products,

earthquakes and revolutions. It has both today; but the revolutions occur less often. There are signs of a better understanding between the individual States, though there is still some jealousy between them, notably between Peru and Chile, and between Brazil and Argentina. Argentina and Chile, after quarrelling for half a century over their boundary, have followed a wiser course. They agreed to have the questions in dispute submitted to the arbitration of Britain, and, after accepting the decision, they set up a solemn monument on the summit of the pass over the Andes, under which the trans-continental railway now bores its way, as the evidence of their determination never again to go to war one with another. It is a gigantic figure of Christ, with the inscription, Sooner shall these mountains crumble than the people of Argentina and Chile break the peace which, at the feet of Christ the Redeemer, they have sworn to maintain. At intervals the States hold a pan-American congress, at which they can discuss the many interests they have in common. In 1924 as a result of the Santiago conference of 1923 a treaty designed to prevent war between the American States was signed by the United States, Venezuela, Panama, Uruguay, Ecuador, Chile, Guatemala, Nicaragua, Brazil, Colombia, Cuba, Paraguay, the Dominican Republic, Honduras, Argentina, and Haiti.

## THE VOLCANIC RANGES WHICH RUN DOWN THE WESTERN COAST

And now, with this very brief statement of some of the principal events of the past, and remembering always that every nation is the child of its past, let us look at the continent itself as it is today, developing every year more rapidly, especially in the accumulation of material wealth. And first we must look at the physical conditions out of which the wealth, the prosperity, the advantages, and the difficulties of this great continent spring.

The dominating physical feature is the volcanic range, or parallel ranges, of mountains running down the whole of the western coast. In Mexico the main chain, the Sierra Madre, runs southward from the Rocky Mountains, but practically the whole of the country is a great tableland, varying in height from 4000 to 8000 feet, from which rise numerous ranges of mountains. The principal volcances lie in a line between Colima and Vera

Cruz. Of these Orizaba and Popocatepetl are about the 18,000 feet level. Popocatepetl is no longer active, but there are some considerable peaks in Mexico which were thrown up so late as the eighteenth century. At each side the slope to the narrow coastal plain is steep. In the south the mountains are compressed into a narrow space, filling, indeed, the whole area of the Mexican province of Oaxaca, and they stretch right away through Central America. Here, again, the ridge hugs the west coast. Many of the volcanoes are active, and have had devastating eruptions within recent times.

#### THE COLOSSAL CUT BETWEEN THE MOUNTAINS JOINING TWO OCEANS

At Panama the great series of mountain ranges sinks at one point to the level of about 3000 feet, and there is a saddle between the peaks of only a few hundred feet. It is in this fold that American engineers have cut the canal running nearly north and south which connects the Atlantic and Pacific Oceans. The mountains continue down the whole of the west coast of the continent, sometimes in three distinct ranges and sometimes in two, enclosing in Peru and Bolivia wide and lofty table-lands on which lies the high inland sea of Titicaca, once much greater in extent than it is today.

The eastern chain is called Los Andes, and the western La Cordillera, though names vary in different places. The Andes contain the highest volcanic peaks in the world, Cotopaxi reaching 19,613 feet. Aconcagua, in the extreme west of Argentina, is one of the giant mountains of the world, reaching 23,080 feet. The South American chain has seven peaks over 20,000 feet high, and eight of 16,000 feet and over. If we remember the height of Mont Blanc, 15,782 feet, we have some idea of the gigantic height of the Andes.

# THE RUSHING MOUNTAIN TORRENTS THAT FEED THE MIGHTY AMAZON

In southern Argentina the parallel ranges give places to one, which ends in the rocks of Tierra del Fuego. Along a great part of the coast there is a low coastal range. Short and rapid torrents come down here and there, but the great rivers flow eastward across the plains, traversed in Brazil by a series of lower ranges which form the water partings between the rivers running north to the Amazon, and between the Amazon and River Plate systems.

The Amazon is the largest river system of the world, the main stream having a navigable length of 3000 miles and a total length of 4000 miles to one of its principal sources, the Lake of Lauricocha, which lies to the north east of Lima in Peru. Many of its great tributaries are also navigable. If we look at the map we see how numerous these are, their great length, and the way in which they widen out here and there into lakes.

# THE GREAT RIVER SYSTEM LOOKING LIKE AN INLAND SEA

In the wet season the Amazon spreads over great areas and in many places has the aspect of an inland sea dotted with forest islands. At all seasons of the year it has many parallel arms, which make it rather a system of waterways than a single waterway. Ocean-going steamers go up as far as Manaos, which is 850 miles up stream from Pará, and is the centre of the rubber trade; ordinary steamers go as far as Iquitos in Peru.

Everywhere the Amazon and its tributaries form practically the only means of communication over a vast area, and the Indians who live there have always been expert watermen and clever in the construction of the canoes and little flat boats with which they navigate the river. Except for the upper course of the Amazon, which is called the Marañon, the whole of its basin is forest, with only small patches of cultivated land; and the same conditions apply to many of its tributaries.

A part of Colombia and the whole of Venezuela lie in the basin of the Orinoco and its feeders, which form the principal highways of the country. The Orinoco is also bordered by forests, but the high lands north and south are covered with a rough pasturage and are known as the Llanos.

### HOW THE INSECTS HOLD A WATERWAY AGAINST THE APPROACH OF MAN

Western Colombia is watered by another great river, the Magdalena. South of the Orinoco system, and in the northern part of Brazil, there are more grassy plains before the great forests begin. There is a curious natural canal connecting one of the feeders of the Rio Negro, a northern tributary of the Amazon with the Orinoco, but it is infested with insects to an even greater degree than the Amazon itself, and is little used even by native canoes. There is, a little higher up the valley, a short water parting where canoes can be hauled across and communication established.

There are two other important factors to be taken into account in the climate and rainfall of South America beside the actual latitude. They are the lie of the mountains, the trade winds, and the cold Antarctic current called after the scientist Humboldt, which comes up the Pacific along the Chilean and Peruvian coasts. From the Isthmus of Panama down to a little below the Equator, at the Gulf of Guayaquil, the tropical summer rains give everywhere the rank, abundant, and varied vegetation of tropical countries. In the Choco district on the Pacific coast of Colombia it rains every afternoon and evening every day of the year. But from the Gulf of Guayaquil down to a point a little north of Valparaiso the west coast is practically rainless, because the trade winds blow south-east from the Atlantic, and after traversing the continent yield up the remnant of their moisture on the high eastern range of the Andes, leaving none for the plateau, the western range, and the west coast. That is why there are very few rivers and practically no rain in

#### THE COLD AND GREY WATERS OF THE TROPICAL SEAS

Curiously enough, that coast is often buried in cloud and mist, which is born of the contact between the cold air arising from the Humboldt current and the heated land. The sea itself is not the blue sea you expect to see in the tropics, but often cold and grey. Only where a torrent comes down to the sea is there any mitigation of the barrenness of these shores, rich as we shall see, nevertheless, because of the guano deposited by sea-birds on the rocky islands of the coast, which would in a wet climate be washed away and wasted, and the valuable nitrate deposits of the desert of Atacama which are shipped from Antofagasta. As soon as you are out of the zone of the trade winds, that is, in the neighbourhood of Valparaiso, the position is reversed. The winds are westerly from the Pacific, and give southern Chile abundant rains, while Patagonia on the eastern side is a thirsty land.

The Andes themselves have a grandeur to be found nowhere else except in the Himalayas. Throughout their whole length right through the tropics, the summits are clad with snow. But the foothills from the west are bare and dry, without the forests which add to the magnificence of the Himalayas. There is little grass, and

except in the deeper valleys no wood on the western side, and on the east in many places one plunges direct from the mountain into thick forest, so that no view of the mountains or anything else can be obtained.

What redeems the scenery of the High Andes (wrote Lord Bryce in his book on South America) is the richness and delicacy of the colours which the brilliant desert light gives to distant objects. A black peak becomes deep purple; a slope of dry grey earth takes a tender lilac; and evening as it falls transfigures the stones which strew the sides of a valley with a soft glow. The snow sparkles and glitters at noonday and flushes in sunset with a radiance unknown to our climate. . . . Yet this cannot make them inspire the sort of affection we feel for the mountains of temperate countries, with their constant changes from rain to sunlight, their fresh streams and bubbling springs, and flowers starring the high pastures.

## The spacious and imposing grandeur of the mountain scenery

There is grandeur and stark beauty of line; there are immense heights and yawning depths. The rainless mountain table-land of Peru and Bolivia is aweinspiring and imposing in the grandeur of its scenery; but the loveliest mountain prospects in Latin America are to be found on the Mexican plateau. Here there is sufficient rainfall to give abundant vegetation, there is the bright sunshine of the tropics with the coolness and clearness of high elevations, and ranges of lower hills and beyond them the towering snowclad volcanic cones; while far away to the southward in Chile there is the added beauty of deep-cut sea flords running up into the land.

Bearing in mind the physical conditions of each region, we can see, if we look at the map, the reasons for the economic circumstances of life. Maize, wheat, coffee, cotton, every kind of fruit, oranges, lemons, grape-fruit, mangoes, bananas, alligator pears—all these flourish in different parts of Mexico, and navel oranges grow wild in perfection. In the north ranching is very important, both for cattle, sheep, and horses.

# THE MINERALS WHICH HAVE BROUGHT WEALTH AND TROUBLE TO MEXICO

The great forests on the coasts of Mexico and in the southern States supply all kinds of tropical hard woods, mahogany, ebony, sandalwood, and rosewood. But the great wealth of Mexico, a

wealth which has brought her much trouble and jealousy for 400 years, lies in her minerals; gold, silver, copper, lead, iron, and many others.

But even these have less importance than the petroleum deposits which appear to be inexhaustible, and which provide 25 per cent. of the world's output, though they have not yet reached their full development. Just as her other mineral wealth has involved Mexico in trouble in the past, so in the last twenty years her great oil supplies have involved her in political disturbances.

Mexico has many excellent harbours on her western coasts, especially at Acapulco and San Blas. But on the Gulf of Mexico the harbours are not good. The Atlantic current swirls through the Caribbean Sea, forming sand banks and lagoons, the channels of which could be kept clear, though at a great cost. Vera Cruz is the principal port on this coast; it has a good harbour constructed by English engineers. The greatest of Mexican rivers is the Rio Grande on the United States frontier.

## THE MEXICAN AND THE BLANKET HE USES BY DAY AND BY NIGHT

There are many others, none of great volume, but serving the extensive irrigation works. Mexico has a high tariff against all imported goods, and makes the bulk of the things she requires. Raw cotton she imports from the United States, but her flocks supply her with wool for home manufacture. A characteristic woollen product is the zarape, or blanket. Every Mexican has a blanket in which to protect himself by day and to cover himself by night.

Mexico City, the capital of the Republic, is also its commercial centre. The city stands on the plateau at an elevation of 7000 feet on the site of the Aztec city. The museum there is full of interest for the archaeologist. There is the Stone of the Sun with its calendar, and the monstrous image in basalt known as the Idol Huitzilopochtli, the Aztec war god. In Yucatan there are extensive remains of Maya buildings with wonderful sculptures. Mexico is one of the most interesting countries to the traveller, but the frequent political disturbances make people shy of going into the distant parts of the country. Naturally her principal trade is with her greater neighbour the United States, but Lancashire sends her textiles, and English

engineers have carried out many great works in Mexico.

In the Central American republics and in Venezuela, Colombia, and Ecuador you have the heavy rains of the tropics and Until the their rich, rank vegetation. advance of science in recent years taught man how to defend himself against his most deadly enemy the mosquito, the swampy ground around the rivers and on the coast was a death-trap for Europeans, and even for the natives who had been habituated to it for centuries. General Gorgas made the building of the Panama Canal possible by destroying the mosquitos in their breeding places and screening the huts of the labourers; and since then he has advised Mexico, Venezuela, and Brazil how to fight yellow fever, and they have carried out his instructions, so that the plague has almost disappeared.

#### THE HEALTHY HIGHLANDS AND THE DANGEROUS VALLEYS

This is the first step to a real development of these districts. In all of them the highlands are healthy and relatively cool, the deep valleys and lowlands, too rich in vegetation, are dangerous to humanity. Throughout them the same great range of produce which we have mentioned in Mexico, with the exception, of course, of wheat, grows profusely, and the coconut palm, which provides the native Indian with food, milk, intoxicating drink, and fibre—in fact, with almost all his requirements. Costa Rica provides one of the best coffees, and exports about 8 million bunches of bananas every year. Honduras has the finest mahogany trees in the world, and is one of the places from which we get our bananas.

In South America the dense forests are the chief obstacles which man has to overcome, and there are vast regions in the tropical area which have so far defied Europeans. You cannot "wander" in a tropical forest, not even in a sub-tropical one, for in an instant you are closed in, and the growth is so dense that a way can only be hacked by using tools.

### THE AMAZING VEGETATION OF THE GREAT TROPICAL FORESTS

That is why the upper reaches of the Amazon are still inhabited by savage and even cannibal tribes. Perhaps the great forest region which covers eastern Colombia and Ecuador, a part of eastern Peru, and a vast area in Brazil, would be more untouched than it is if it were not for the

rubber seekers, who in pursuit of this product have made their way into the forest where the rivers have cut a path through the dense growth, and have made the name of the Putumayo river a byword.

The forest has an amazing variety of great trees, many of them with vivid blossoms of all sorts of colours; there is an undergrowth of palms, bamboos, and other plants, and even the tree fern will grow to the height of 20 feet; then there are the climbing and parasitic plants, from the thick monkey-ladder to the brilliant orchid which add to the profusion of life. Even keeping to the trees and the monkeyladder as the monkeys usually do, they are still not safe from their enemies, for the boa-constrictor winds itself around the trees and catches its prey in this way. Similarly the rivers swarm with alligators which prey on the smaller animals.

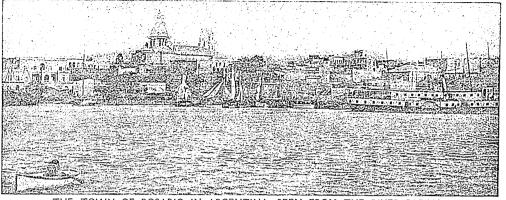
The spotted jaguar is the tiger of the new world, and the fiercest of the forest animals. There are many kinds of wild cats. Henry Walter Bates, the traveller and naturalist, records 38 species of monkeys on the Amazon. The Brazilians keep the coaita, or red-faced spider monkey as a pet. Other wild animals of tropical America are the ocelot, a prettily marked beast which lives in the trees and preys on birds; the puma, the Mexican lion, which sometimes attacks horses and cattle; the tapir; the sloth; and the ant-eater.

#### THE SMALL HUMMING-BIRD AND THE GREAT CONDOR OF THE ANDES

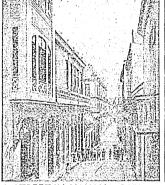
The birds are brilliant in colour but not generally musical in song. Parrots and macaws abound, and the humming birds, some no bigger than bees and others as large as wrens, flash their lovely wings in the sunshine. Oddest of all South American birds is the toucan of Guiana and Brazil. Its huge beak, like the claw of a lobster, is orange in colour and is 8 inches long; the head is blue and orange, the throat white, and the plumage black with red and white on the tail, altogether an amazing creature. Of the birds of prey the most extraordinary is the condor of the Andes, a kind of South American eagle which figures largely in Peruvian sculptures and pottery. The tortoise is a valuable item of commerce, and on the upper Amazon a staple food.

In northern Brazil the same kind of produce is found as in the northern republics. In the eastern highlands cotton is widely cultivated. Rio de Janeiro the

## PICTURES OF LATIN AMERICA



THE TOWN OF ROSARIO IN ARGENTINA, SEEN FROM THE RIVER PARANA

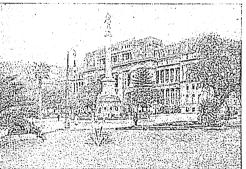




A STREET IN HAVANA, CAPITAL OF CUBA

COLUMBUS CATHEDRAL AT HAVANA

THE EXCHANGE AT MATANZAS





THE LAW COURTS AT BUENOS AIRES

NATIONAL CONGRESS PALACE AT BUENOS AIRES

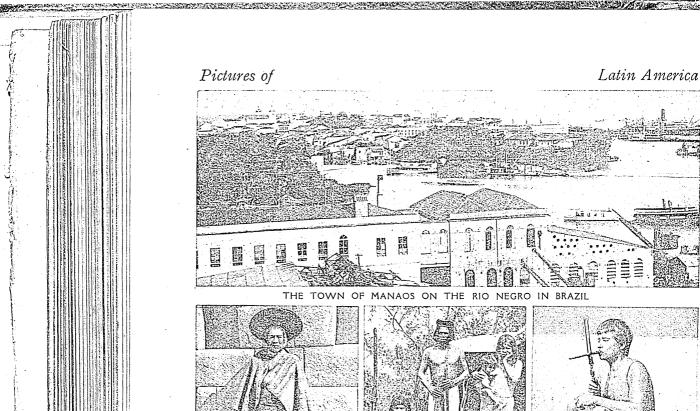




A PLANTER'S HOME NEAR MATANZAS IN CUBA Maps of Central and South Ameri

Maps of Central and South America appear in Section 56 of Group 12

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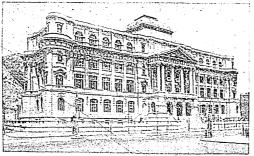
AN OLD INDIAN POSES FOR HIS PORTRAIT



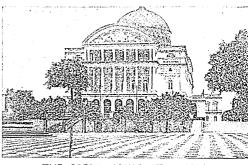
INDIANS OF BRAZIL AT HOME



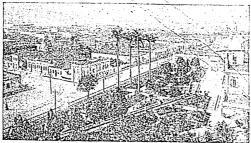
AN INDIAN OF BRAZIL ENJOYS A SMOKE



THE NATIONAL LIBRARY AT RIO DE JANEIRO



THE OPERA HOUSE AT MANAOS

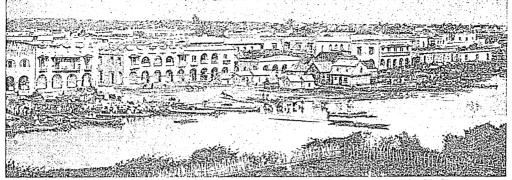


SANTOS. A PORT OF SANTO PAULO IN BRAZIL



RIO DE JANEIRO. THE CAPITAL OF BRAZIL

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BARRANQUILLA. THE CHIEF PORT OF COLOMBIA ON THE MAGDALENA RIVER

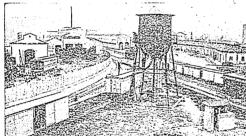


THE AVENUE OF PALMS IN VERA CRUZ, MEXICO



AN INDIAN MOTHER AND HER THE BASILICA DE JESUS DEL RIO CHILD OF YUCATAN IN MEXICO AT PASTO IN COLOMBIA





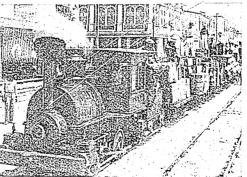
THE SEBANA CENTRAL RAILWAY STATION AT BOGOTÁ IN COLOMBIA



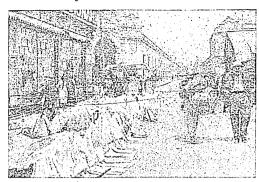
THE GOVERNMENT PALACE AT QUITO. CAPITAL OF ECUADOR



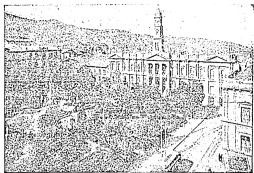
A FOUNTAIN NEAR BOGOTA, FEDERAL CAPITAL OF COLOMBIA



A RAILWAY IN THE STREETS OF GUAYAQUIL IN ECUADOR



A CLOTH MARKET IN MEXICO CITY



THE LEGISLATIVE PALACE AT LA PAZ, CAPITAL OF BOLIVIA



INDIANS IN LA PAZ, BOLIVIA



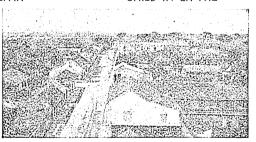
AN AYMERA INDIAN OF BOLIVIA



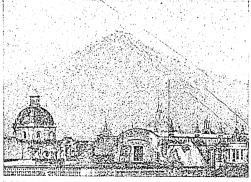
AN INDIAN MOTHER AND CHILD IN LA PAZ



THE CITY OF PUEBLA IN MEXICO



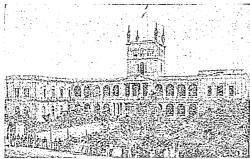
TAMPICO, A MEXICAN SEAPORT



POPOCATEPETL, THE GREAT MEXICAN VOLCANO

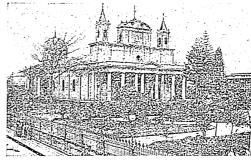


A STREET SCENE IN TIERRA DEL FUEGO



THE GOVERNMENT PALACE AT ASUNCION.

CAPITAL OF PARAGUAY



SAN JOSE CATHEDRAL IN COSTA RICA



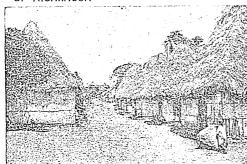
A PEASANT WOMAN OF NICARAGUA



TWO LITTLE NATIVES OF PANAMA



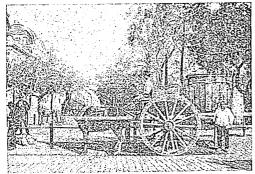
A FARM LABOURER OF NICARAGUA



A NATIVE VILLAGE IN PANAMA

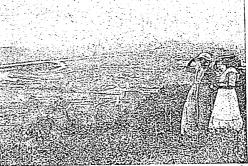


OX-CARTS ON THE ROAD IN COSTA RICA



A WATER-CART IN A STREET IN SAN SALVADOR.

CAPITAL OF SALVADOR



LOOKING DOWN ON THE PANAMA CANAL FROM THE HILL OF BALBOA



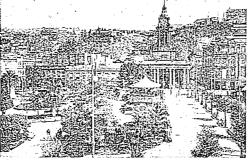
INCA MASONRY IN CUZCO, PERU



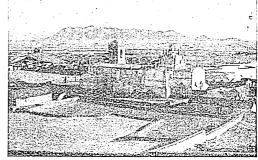
THREE LITTLE BOYS OF GUATEMALA



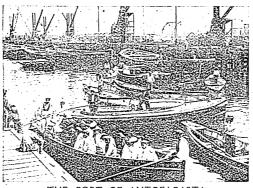
A NATIVE STREET
IN CHILE



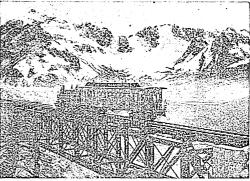
THE PLAZA VICTORIA AT VALPARAISO IN CHILE



THE CATHEDRAL AT JULIACA IN PERU



THE PORT OF ANTOFAGASTA
IN CHILE



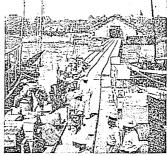
THE WORLD'S HIGHEST RAILWAY BRIDGE
IN THE PERUVIAN ANDES



LOOKING DOWN ON GUATEMALA CITY



THE GREAT STATUE OF CHRIST IN THE ANDES 7010



GRANADA THE LANDING-PLACE ON LAKE NICARAGUA



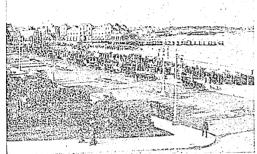
A STREET SCENE IN SANTO DOMINGO



A MAN OF MEXICO



WATER-CARRIERS NEAR CULIACAN IN MEXICO

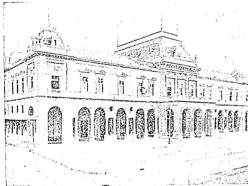


POCITOS BEACH AT MONTE VIDEO.

CAPITAL OF URUGUAY



MONTE VIDEO, ON THE ESTUARY OF LA PLATA RIVER



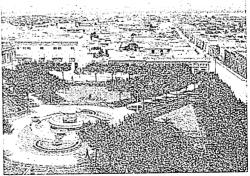
THE CENTRAL RAILWAY STATION,
MONTE VIDEO



MONTE VIDEO CATHEDRAL IN URUGUAY



THE MAIN STREET IN SANTO DOMINGO,
DOMINICAN REPUBLIC



THE TOWN OF PAYSANDU
IN URUGUAY

DOMINICAN REPUBLIC
The pictures on these pages are by Messrs. Burton Holmes, Ewing Galloway, the E.N.A., and others

capital, Santo Paulo, and Santos, the coffee port, all lie near the line of Capricorn. But the trade winds from the Atlantic and the height of the land—for the whole district is traversed by a series of mountain ranges—make the climate comparatively cool and pleasant. This is the greatest coffee-producing country in the world, providing about three-quarters of the world's supply.

## THE FOODS WHICH GROW IN THE SOUTHERN STATES OF BRAZIL

In the southern States the tropical produce, the sugar, the rice, the cocoa, and the nut-bearing palms-from which the famous Brazil nuts are gathered—give way to the crops of more temperate climates. Maize grows in all the provinces, and manioc, the root from which the farina used by Brazilians in breadmaking is derived, is universal. In Parana there is still coffee, but also a great acreage under wheat, potatoes, and yerba maté, the leaf from which a liquid resembling tea is brewed all over the southern States of South America. In Rio Grande do Sul you are in a warm temperate climate, and find enormous stretches of alfalfa or lucerne, the great fodder crop of the continent. Here is the beginning of the ranching industry which makes the wealth of the countries to the south.

The towns of Brazil are modern, with wide streets, electric light, tramways, and the rest of the apparatus of civilisation, but within a mile or two of any of them you may find yourself in a wild and impenetrable forest. Rio de Janeiro, known generally simply as Rio, the capital, is one of the most beautifully situated cities of the world, with its wide bay flanked by the Sugar Loaf mountain and the curious pointed peaks of the Organ Mountains.

#### HOW THE COFFEE IS TAKEN ACROSS THE MOUNTAINS FOR EXPORT

Santo Paulo, which is a centre of the coffee plantations, stands high on the plateau and is connected with Santos, the port from which the coffee is exported, by a mountain railway. Pará, at the mouth of the Amazon, has a large trade up the river down which the rubber from the forests is brought. Pernambuco, built partly on an island at the extreme easterly point of Brazil, is sometimes called by the Brazilians the American Venice. Bahia, once the capital, is now famous for its cocoa and tobacco.

South of Brazil and westward in the heart of the continent lie the great southern plains of Paraguay, Uruguay, and Paraguay, watered by the Argentina. Paraná and the Paraguay, is the most Indian of all the States, and outside Asuncion and the two or three other towns the spoken language is Guarani or Indian. Ranching is the principal source of wealth. Uruguay is a progressive little State with advanced legislation and a determination to bring the standard of government and of education up to European levels. It has a magnificent river, the Uruguay, and a fine natural port in Monte Video. Both Uruguay and its larger and more powerful neighbour Argentina are primarily stockraising countries. The Indian element is less in these two States than anywhere else in South America, and there has been during the last fifty years a continuous stream of immigrants from the United Germany, England, Scotland, States, Italy, and Spain, who have brought energy and business methods into the country.

#### Buenos aires, the busiest city in Latin America

Buenos Aires itself is busy and bustling, and more like a North American city than any other place in Latin America. people of Buenos Aires are very wealthy, and they make frequent trips to Europe, especially to Paris, and bring back French fashions, French books, and French amusements. The city is rich, smart, and expensive, with nothing of the quiet Spanish city about it. Its citizens will tell you with pride that it is the largest city south of the Equator, the largest Spanish-speaking city anywhere, and rapidly becoming one of the largest ports of the world, though it has not the natural advantages of Monte Video, and has been constructed with much labour. Argentina has taken its constitution and its business methods from the United States, but its literary and artistic culture is Spanish and French.

The pampas or plains of southern Argentina are really flat, without the undulation which relieves the plain of Uruguay. But away in the west and north you will see that the High Andes are partly in Argentine territory, and that the country stretches away inland to north of the tropic. In these northern districts sugar and tobacco are grown. Argentina is more subject to drought than Uruguay, and also suffers from locusts, which do enormous damage in some years in spite

of the strong measures taken against them. In the south there is a tract which gets very little rain at any time, as the prevailing winds there are westerly and precipitate their moisture on the Andes. In many districts water is not too plentiful, and it is necessary to sink deep wells, the water being run along the fields in troughs for the use of the cattle.

## THE SKILLED GAUCHOS WHO ROUND UP THE CATTLE ON THE PLAINS

Argentina is mainly a country of ranching and farming on a large scale, exporting through Buenos Aircs to Europe immense quantities of meat, wheat, linseed, and maize. Originally the Spanish landowners had big holdings of a square league, or about six thousand acres. There were practically no enclosures, and great herds of cattle and horses wandered over the plains, marked with their owners' marks and brought in from time to time by the gauchos, who are as skilled with the lasso and the bolas as any American cowboy. Holdings or estancias of this size are still common; but as time goes on -settlement is becoming closer, and it is found necessary to find smaller holdings for new men. The day of the unenclosed pampas is past. The estancias are being broken up into fields for the better management of the stock, and wire fencing is everywhere. The herds are carefully bred, and the Argentine landowner spends enormous sums on pedigree animals from England, which are kept in good quarters and pampered as pets of the family.

# THE GREAT STOCK FARMS WHICH SUPPLY THE WORLD WITH MEAT

Many estancias are owned by the great meat companies of Buenos Aires and Monte Video, who put in European managers, often Englishmen or Germans, who have a house and a salary but are not owners. There are estancias for the breeding of big herds of cattle, and others where the young stock brought from the breeding ranches are fattened for the freezing works, large areas being kept under maize and alfalfa for feeding them. On the stockraising farms the labour is provided by the peon, or native Argentino, but on the farms devoted to arable culture a great part of the labour is Italian.

There is not much variety of life on the estancia, less than there used to be when there were no enclosures, and there was the excitement of catching the stock with the lasso, but on high days and

holidays the peon will go off on his horse to the nearest town and get a little amusement. But the town is far away, and though there is a network of railways all over the more thickly settled districts, travelling is expensive and the distances long. The manager and his family themselves get to town seldom, for hotel accommodation is scarce and dear. It is very difficult to get education for the children in these distant places, and for the native there is hardly any chance of learning at all. And there is little future for him. He spends his wages on his jaunts to town. If he wants to marry he can rarely get a house, and to get a piece of land which he could live on when he is too old for the more active work is almost impossible.

Farther south the chief industry is sheepraising, for Argentina is a great producer of wool and of mutton as well as beef. The republic has its troubles. The Italian and Spanish artisans who form an important element in the trade unions often bring the anarchist tradition with them, and labour disputes assume a violence happily unknown in England.

### THE MANY FLOURISHING

There are many flourishing cities in Argentina besides Buenos Aires. Tucuman in the north is the centre of the sugar industry, and is 25 hours by rail from Buenos Aires; the old town of Santa Fé on the Paraná; La Plata, founded in 1882, when the first big boom in Argentina began, was a proverb for its rapid growth, and now it is becoming more important again as a centre of the oil-refining industry; Bahia Blanca is the great shipping port for grain from the south; Cordobá, with its university, set in lovely scenery on the edge of the western highlands, is the city of learning; Comodoro Rivadavia in the south is an important oil centre; and there are many others. With one of these others all travellers in South America are familiar—the town of Mendoza, which lies on the transcontinental railway from Buenos Aires to Santiago in Chile, just at the point where the railway begins to ascend toward the mountains. This part of Argentina is bare and arid, but Mendoza, watered by a torrent which descends here from the Andes, is a little oasis where the vine flourishes. Here too is one of the centres of the petroleum industry, which becomes more important every year, as wells are found in different parts of the

country, from Jujuy in the north to the extreme south. The town of Mendoza has a magnificent view of the high Andes towards the south-west, from Tupungato southwards, especially at sunrise when the light touches the snow with red.

## THE COLOSSAL FIGURE OF JESUS STANDING

From Mendoza the line passes through a plain, and then up the imposing Valley of Desolation to the point, fifteen hundred feet below the summit of the pass, where the mountain is pierced by the railway tunnel. The line is a wonderful piece of engineering, and for the last part of the ascent to the tunnel the journey is by rack rail. Far above on the old mule track stands the gigantic figure of the Christ, to symbolise the determination of the two nations to live at peace. Descending towards Chile you pass through some of the finest rock scenery in the world, and presently descend to a lovely watered country very different from the arid plains of the coast farther north; for here the winds are westerly, and the dry tract is on the Argentine side. Bright sun, mountain air, vineyards, rushing torrents, forest trees, brilliant flowering cactus, and flowers of every hue greet the eye.

At Los Andes the traveller will see men in crimson ponchos—the universal Indian garb in the west, a brightly coloured woollen, oblong cloth, with a hole through which to put the head—galloping along with curiously made and ornamented saddles; he will see teams of oxen drawing the haycarts; droves of pack mules; women carrying baskets of pomegranates; dark, low houses with no windows visible from the street, for the windows open to the court, or patio, round which the house is built; and behind all—the Andes. Santiago, the capital of Chile, is a beautiful old Spanish town, and Valparaiso, its port, is one of the busiest places on the Pacific coast.

# CENTRAL CHILE AND ITS DANGER FROM EARTHQUAKES

Central Chile is one of the loveliest countries on the world, with its indented coast, its islands, its mountains, its sunshine, and its rich variety of flowers and fruit. The people are energetic and enterprising. The Chilenos had a fierce and long struggle with the Araucanian Indians of this district, who are still among the finest of the native races, and are themselves bold and active. The

Chilean cities are not so modern in pattern as some in the Atlantic States, and there is always the danger of earthquakes, like the one which devastated Santiago and Valparaiso in 1906; but great advances are made every year. The whole of the coast is more Spanish, less touched with European manners and ways, than we find on the other side of the Andes.

Chile has one great natural source of wealth beside her agriculture, and that is in her nitrate fields. A little to the north of Valparaiso, at about 30 degrees north, the wind direction changes, and the desert In the higher regions of this desert, about 30 miles from the coast, at a height of from 3000 to 5000 feet, occur the nitrate deposits, producing the nitrate of soda or saltpetre which is so valuable a fertiliser for our European fields. The district is a bare and barren country, where everything has to be imported for the use of the population which has grown up around the industry. All the food for man and beast, even the water, has to be brought from without, and such little gardens as have been made are made of imported soil. But the district, possession of the whole of which was only obtained by Chile after a war with Peru and Bolivia in 1881, brings foreign capital and great wealth to Chile.

#### A NTOFAGASTA, THE SEA-GATE FOR TWO COUNTRIES

The nitrates are exported from the port of Antofagasta, which fetches its water from a spot 193 miles away. From Antofagasta, too, is exported the copper mined in the Bolivian and Chilean mines in the mountains. This port serves Bolivia as well as Chile, and from there runs a railway into the heart of the mountain plateau, right up to La Paz, the real, though not the nominal capital of Bolivia.

Two other important seaports in Chile are Iquique, a town which has suffered terribly from earthquakes, and from which nitrates and iodine are exported; and far away in the south Punta Arenas, on the Straits of Magellan, the centre of a flourishing sheep and wool trade.

But to return to Antofagasta. You may either ascend to La Paz from this Chilean port, taking 48 hours, or you may take a shorter route from Arica. Or again there is a railway from Mollendo in Peru to Puno on the Peruvian side of

Lake Titicaca, and thence the traveller can go by boat to Guaqui, and on to La Paz by rail. It is possible to approach Bolivia from the Atlantic Ocean from Pará, at the mouth of the Amazon. The Amazon and the Madeira rivers are navigable as far as the falls on the Madeira River near Sant Antonio, from which place there is a little railway leading to Villa Bella in Bolivia, and from this point it is possible to travel by river and on muleback to La Paz.

## LONG STRINGS OF LLAMAS CARRYING GOODS IN THE MOUNTAINS

The mule is the standard way of travel in the whole of this high region. For the transport of goods the people of Bolivia and Peru use strings of llamas. The llama is useful for his wool as well, and is shorn every three or four years; but his chief service to humanity is to do their carrying for them. He is a curious beast, and has more than his hump in common with the camel. He knows exactly how much a llama is expected to carry—about 100 pounds, and nothing in the world will induce him to do more than his share. He simply lies down, and will not get up if more is put on his back.

But by whatever route La Paz is reached the traveller finds it a wonderful place. To begin with, it is the highest capital in the world, standing at an elevation of 12,700 feet. That is about the altitude of the Ortler, in Tirol; the difference lies in the tropical climate. Nevertheless, La Paz does not lie on the top of a hill, but in a deep depression of the plateau, and to reach it you descend into a basin about 1500 feet deep. For the traveller approaching the city from Guaqui, there is no sign whatever of the existence of the place until he notices llamas, donkeys, and pedestrians moving along to a spot where they suddenly disappear from view.

## THE WONDERFUL CITY WHICH LIES AT THE FOOT OF A PRECIPICE

The railway ends, and he walks a few steps and finds himself on the edge of a precipice. Below him are the red roofs of the town, its streets and squares seen as on a map. Down the cliff the electric tramway zigzags its way. La Paz is so high that the visitor is apt to suffer from the mountain sickness which is one of the difficulties of life on the Peruvian and Bolivian plateau.

La Paz is really an Indian city and Bolivia is primarily an Indian country.

But there is little intercourse between the Indians and the white people. Indian does the actual manual work. Next above him comes the mestizo, or half-breed, who commonly wears European clothes, and is reckoned, by himself at any rate, as a white man. He directs the Indian labour. The Indian is nominally a Christian, but he has adopted the saints of the Church without abandoning the old beliefs and superstitions which he held under the Incas. This is the case, too, with the Quichua Indians who form the country population of Peru. They neither love nor hate the white man, but they fear him and keep aloof, partly because even today there is a tendency to exploit the red man and cheat him of his just rights. So they live their own lives, keep their own native dances, the real secrets of which are hidden from the white man, though in some places you may now and then see a public dance, when the Indian dresses himself in the most terrible looking masks, adorns himself with all his fine clothes and feathers, and, accompanied by wild and barbarous music, dances as his forefathers have done for centuries

### THE ANCIENT RUINS WHICH HELPED TO MAKE A RAILWAY

La Paz is very cold after sundown, but the Indian seems well acclimatised. He wears a cotton shirt and loose trousers, surmounted by a gay poncho and a felt hat; his women wear a multitude of woollen petticoats, red, orange, and other bright colours. Europeans shiver after sunset, for there are no fireplaces, because the little fuel there is must be reserved for cooking purposes.

The little railway which leads from La Paz to Guaqui on the shores of Lake Titicaca is interesting, because in the building of it the engineers used quantities of the stones of one of the oldest and strangest ruins in the world. These stand on the plain of Tihuanuacu, and date from a period long before the coming of the Incas. There are still standing immense walls and doorways, with carvings of human figures, and of the condor and the puma.

Bolivia is not all mountainous country. On the other side of the Andes there is some good grazing country where the land descends to the Chaco, the plain which continues under that name into northern Argentina, while the north-east forms part of the selvas or torests of the upper waters of the Amazon, and is a rich

rubber country. The mountainous region is rich in tin, copper, silver, and other minerals which are only partially developed. The silver mountain of Potosi is in Bolivian territory. The chief mineral exported is tin. Other valuable products are coca, from which cocaine is derived, and the beautiful furs of the little chinchilla and the fox. Some of the fine wool of the alpaca and the vicuna goat is exported; but much of it, both here and in Peru, is spun and woven by the people themselves for their own use. Ponchos of vicuna wool are valued all over South America, as they are proof against heavy rain, and practically never wear out.

Crossing Lake Titicaca in the excellent boats which ply between Guaqui and Puno the traveller is in Peru. The natives use a boat made of reeds, which is called a balsa. Titicaca is about one-third as large as Lake Ontario, and contains the islands of the Sun and the Moon held sacred by the Incas. It is a beautiful lake, with a view of the range in which Illimani and Sorata are the giants. One of the most charming things about it is the presence of the great flocks of pink flamingoes, which look as if they had come straight out of a fairy tale. There are quantities, too, of many other sorts of wild fowl.

## THE MASSIVE WALLS OF CUZCO WHICH HAVE STOOD FOR THOUSANDS OF YEARS

Away to the north-west the railway carries you to Cuzco, the City of the Sun and the capital of the old Inca empire. It is a Spanish city, but the inhabitants are mainly Indians. The Spaniards destroyed the ancient city as far as they could, but they could not destroy the vast walls. Some of these walls, built of huge stones fitted together with amazing skill, remain, and in some cases modern houses are built on them. The church and convent of St. Dominic is built out of the remains of the Temple of the Sun, and the west end of the church is evidently an old Inca wall. Outside the city rise the ruins of the ancient fortress of Sacsahuaman, on a hill about 650 feet high. The walls on the side away from Cuzco, where the ascent is less steep, are built in three parallel lines, and the whole forms one of the most imposing remnants in the world of prehistoric times. On the hillside stand seats cut out of the solid rock of the hillside.

The presence of these indications of past greatness arouses endless questions when one sees the abject condition of the people whose forefathers built them. The contrast between the past and the present is more startling here than anywhere else. A letter to the writer, dated from Cuzco, gives an impression of the place.

#### A TRAVELLER'S IMPRESSION OF THE ANCIENT CITY OF THE SUN

I started at 8.30 a.m., and crawled slowly out of the town, up a steep street paved with huge cobbles, like the bed of a river, an open sewer down the middle, and the most incredibly filthy dwellings and people.

The dwellings are windowless, just like a dark cave, with earth floor and obviously the dirt of generations, the cooking being done on a

charcoal brazier.

I mounted very slowly amid pack mules, llamas, and Indians, and finally emerged into the country, and followed a rough mule track up the hill. After about an hour and a half's slow walk I reached the bend where the track passed out of sight of Cuzco. There I sat for an hour, watching the constant stream of Indians, the men with heavy packs, women with babies, sometimes driving donkeys, oxen, or mules, going some to and some from the city, but each one stepping aside at that spot looking at the City of the Sun, and each one baring his or her head and saluting it.

The people here are Quichuas, and speak the Quichua language. They are most diligent cultivators. Where they are unable to get good land they cultivate the terraces made in the hillside. At some time Peru must have been thickly populated. But the Spaniards allowed the irrigation works to get out of repair, and with that the possibility of supporting a large population on the soil in the more arid districts was destroyed.

Excellent cotton of the long-staple Sea Island variety is grown in some districts of Peru. The conditions are similar to those which make the growing of long-staple cotton possible in Egypt. The torrents which come down from the mountains overflow their banks at certain seasons of the year, and when they return to their beds they leave behind them a fine silt which is admirable for cotton-growing. The main crop is similar to American cotton. Sugar is grown in the irrigated districts. Other crops are tobacco, coffee, cocoa, and rice.

## THE GREAT FORESTS OF PERU WHICH SUPPLY THE WORLD WITH RUBBER

On the Peruvian coast are the guano islands. This deposit is a rich manure; but supplies are not so abundant as they were. Peru has anthracite coal, copper, silver, and gold mines, and oil-fields on

the Ecuador frontier. Rubber comes from the forests to the east of the sierra and from the forests on the banks of the rivers which flow down to the waters of the Amazon. It is exported by river through Pará in Brazil. Cinchona bark, from which quinine is made, was once an important trade, but now Europe takes its supplies chiefly from Java.

The chief port of Peru is Callao, and eight miles away stands Lima the capital, the city founded by Pizarro on the banks of the Rimac river. Everywhere throughout. the continent the towns show considerable art in the laying out of the squares and the streets. Every Spanish town has its great plaza, where the principal churches and buildings are. The plaza is generally planted with trees and has a fountain in the middle. The churches in the older towns date from the early days of the conquest; some of them are admirable examples of Spanish sixteenth and seventeenth-century art. The interiors are richly and rather gaudily decorated, and nearly all the principal ones have silver altars. The old colonial houses are built round a patio, with a fountain in the middle and orange trees or vines or gay flowers.

### THE FAMILY LIFE OF THE PEOPLE OF PERU

Here the family live and eat. To the street the house presents a blank wall, sometimes with a carved wooden balcony jutting out into the street, often gay with flowers. The closed-in Spanish house is significant of the social life, which is very much more strict and formal than ours. The visitors to the house are chiefly the whole circle of relations, and it is with difficulty that a stranger is admitted.

The lovely little city of Arequipa is a good example of the Spanish colonial town. It is the second city of Peru, and lies about 107 miles from the coast in an amphitheatre of mountains, which includes the three great peaks of El Misti, Chachani, and Pichu Pichu. It stands about 7000 feet above the sea out of reach of the sea mists, in beautiful desert air in a bright light which gives full value to the shadows in the streets bordered by the blank walls of the low houses, broken here and there with fast-shuttered windows. There is something reminiscent of a Moorish city in the place, because it is in effect a desert city, and the same ways of living are prescribed by the climate as prevail in the That is the real reason for the

darkened houses, for their flat roofs, for the courts where the family can sit out in the cool of the evening undisturbed by curious eyes, and for the arcades in which the shopping can be done in protection from the glare of the sun. Arequipa has a cathedral and a magnificent Jesuit church built of red-grey sandstone, with a finely carved façade and an interior rich in wood-carving of every kind. The city is the most ecclesiastical place in the whole of South America and one of the most conservative.

#### $T^{\mbox{\scriptsize HE}}$ capital of equador nine thousand feet above the sea

The little republic of Ecuador is mountainous and still undeveloped. From the port of Guayaquil a railway runs to Quito, the capital, which stands at a height of 9350 feet, and since the rail was laid the road between the two cities has fallen into disrepair. Elsewhere there are practically no roads, and communication is effected by mules travelling over rough tracks. The country is well watered by rivers which flow down to the River Marañon, one of the upper branches of the Amazon, but they are not navigable.

Colombia covers a vast area, and is enormously rich in her natural resources, but here again there is very inadequate communication. The main artery is the Magdalena river. River travelling is slow, and it may take as many as fourteen days to get from the port Cartagena to the capital Bogotá. Cartagena is an interesting place to English people, because it is there that in 1585 Francis Drake crept into the harbour in the night, and at daybreak broke through the fortifications and captured the town. It is a white city rising straight from the sea, with its streets and houses in the Spanish colonial fashion. The coast is bordered by mangrove swamps. Every kind of tropical produce is grown in Colombia, which is said to have the best mild coffee in the world, and exports large quantities to the United States. England takes very large quantities of bananas from her.

#### HOW THE OILFIELDS WILL HELP THE DEVELOPMENT OF COLOMBIA

There are big oil-fields in the Magdalena Valley which are being developed by United States companies, so that in time there will be capital enough to exploit the resources of the country. One of the minor industries of Colombia and Ecuador is the making of genuine panama hats,

manufactured from the fronds of a certain variety of palm.

Venezuela lies entirely within the tropics and, like Colombia, is still a long way from being as prosperous as she may one day become. Here again Americans are coming in connection with the oilfields. Venezuela has the advantage that the Orinoco is navigable throughout the whole of its length in the State, and even beyond its borders into Colombia. Caracas, the capital, stands on high ground, and has beautiful shady streets and squares, so that the climate is not oppressive in spite of the tropical latitude. In the llanos in the south of Colombia are the beginnings of a cattle industry.

## THE PROBLEM OF THE VAST UNPEOPLED SPACES OF LATIN AMERICA

The future of Latin America no man can safely tell. Where European capital is abundantly available and is backed by a constant immigration of colonists from progressive European countries, as is the case in Uruguay and Argentina, the country is prosperous, and adds substantially to the wealth of the world by the export of food and other commodities. But the case is not quite so simple as that. For the climate of these two countries is not so hot as to be unsuitable for Europeans. The problem of the least developed of these countries with hot tropical climates is a very The population is still different one. ridiculously small. Colombia has about 13 persons to the square mile, and Ecuador less than 10. It has to be remembered, too, that a large proportion of these are Indians living in poverty. Brazil has not ten people to the square mile. Her territory is so large that you could put the United States into it and still find room for Spain and Portugal. Huge tracts are in the hands of tribes living in savage fashion, and great areas are not really explored at all.

## THE BARRIER AGAINST DEVELOPMENT IN THE SOUTH AMERICAN STATES

Many people think, nevertheless, that Brazil, so rich in nearly every kind of natural resource, and with a climate that in many districts is nearly perfect, is one of the great countries of the future, and will be able to absorb large quantities of people from Europe and give them the means of living in comfort and prosperity. The difficulty is a matter of politics and economics. Europeans,

and particularly Englishmen, have lent large sums to South American States for the making of railways, for opening up mines, and so forth, and in some cases there is difficulty about payment, so that people are not eager to lend more. This is the case with Brazil. Yet they must have European or American money if they are to open up their vast country, and it is difficult for them to get it while their political situation is so disturbed.

But, on the whole, development since the Wars of Liberation has been rapid. Education is still backward, and must be where the population is so scattered. There are universities, but in some the only faculties are those dealing with the practical training of the students for different callings—for medicine, law, engineering, farming, and so on. Matters are improving both for men and women. In spite of the Spanish tradition of the seclusion of women, girls go in increasing numbers to the universities. Many young men spend their college years at the universities of the United States, strengthening the hold of the ideas of the Great Republic on its sister nations.

#### THE PLACE OF SOUTH AMERICA IN THE FUTURE OF THE WORLD

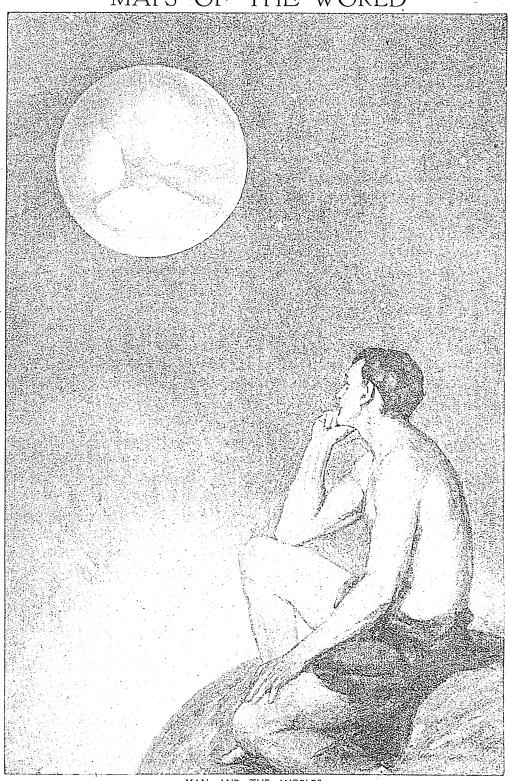
If the South Americans take their political ideas from the United States, they go to Spain, and to an increasing degree to France, for their literature and their art. It is astonishing that the Spanish race, so artistic, so poetic, and so great in literature in Europe, has not produced in America much that can be called great art or great literature. But everywhere South Americans are a music and an art-loving people, and the love of and the talent for music are shared by the Indian population.

Nature has given South America such a magnificent country that she may yet redress the balance of the Old World, but she is hampered by a troubled and a blood-stained history, and lacks the tradition of good government and of freedom which we are so fortunate as to inherit from our forefathers. It may be that, with no fear of outside invasion, and with her statesmen taking part in the political work of the wider world at Geneva, in the Palace of the League of Nations, both the ideas and the practice may improve, and in due course bring health and peace and happiness to the peoples of this vast continent.

GROUP 12

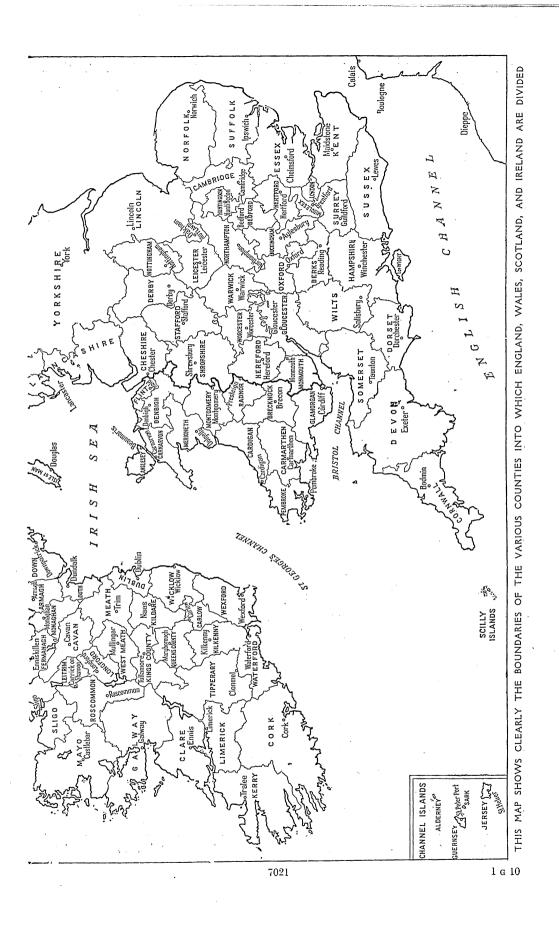
## PICTURE ATLAS MAPS OF THE WORLD

SECTION 57



MAN AND THE WORLDS

THE UNITED KINGDOM DIVIDED INTO COUNTRIES AND COUNTIES SHETLAND ISLANDS DURHAM RTHUMBERLAND ≳ マ 7020



#### THE WORLD AND ITS POLITICAL DIVISIONS

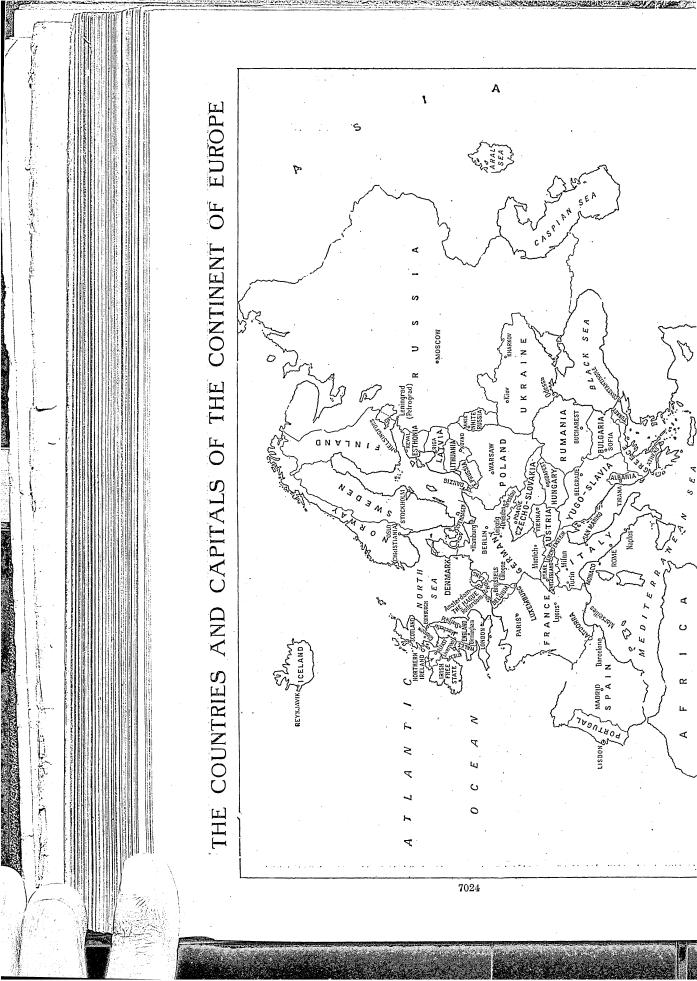


THIS OUTLINE MAP SHOWS THE WHOLE WORLD ON MERCATOR'S PROJECTION WITH THE

7022

#### A COMPLETE MAP OF COUNTRIES & CAPITALS





A MILLION INHABITANTS

OVER HALF

9

EUROPE WITH THEIR CAPITALS AND CITIES

OF

SEE THE MANY COUNTRIES

THIS MAP WE

#### Wordsworth's Ode On Immortality

WILLIAM WORDSWORTH is known by this poem more universally than by any other of his writings, for it appeals, with great beauty of thought and language, to a common human experience. Looking back, the man remembers how the fresh sights of the natural world thrilled him when he was a boy. It was as if a glow rested on it from other worlds. The poet suggests that a child brings into the world lingering recollections—mere hints—of lives lived before elsewhere, and though they fade away they leave us spiritual longings to the end of our days. The title of the poem is Intimations of Immortality from Recollections of Early Childhood.

#### WORDSWORTH REMEMBERS HIS CHILDHOOD

The poet begins by stating that the dreams and visions of his youth had made the Earth, and all his eyes had looked upon in early years, so beautiful to him that in later life, when the commoner sights had become so familiar, they seemed to lose some of the qualities they once possessed.

THERE was a time when meadow, grove, and stream,

The earth, and every common sight,

To me did seem

Apparelled in celestial light, The glory and the freshness of a dream. It is not now as it hath been of yore:

Turn whereso'er I may,
By night or day,

The things which I have seen I now can see no more.

His knowledge tells him that Earth and all its wonders are not less fair than when he was young; but they have lost the "glory" which they had when his eyes first beheld them.

The Rainbow comes and goes,
And lovely is the Rose;
The Moon doth with delight
Look round her when the heavens are

bare;
Waters on a starry night
Are beautiful and fair;
The sunshine is a glorious birth;
But yet I know, where er I go,

That there hath passed away a glory from the earth.

But there are times in our later years when the singing of the birds and the frisking of the lambs suddenly bring up before us, as in a flash, our childhood's happy visions.

Now, while the birds thus sing a joyous

And while the young lambs bound As to the tabor's sound,

Fo me alone there came a thought of grief:

A timely utterance gave that thought relief,

And I again am strong;
The cataracts blow their trumpets from
the steep;

No more shall grief of mine the season wrong;

I hear the echoes through the mountains throng,

The Winds come to me from the fields of sleep,

And all the earth is gay; Land and sea

Give themselves up to jollity, And with the heart of May

Doth every beast keep holiday;
Thou Child of Joy,

Shout round me, let me hear thy shouts, thou happy Shepherd-boy!

Yet, in the midst of his delight in thus living over again his childhood's joys, the poet finds himself making note of some things—a tree and a field—that seemed to be different now as compared with his early visions of them; thus the spell is broken: he is a man again, and trained thought takes the place of simple natural feeling and delight.

YE blessed creatures, I have heard the call Ye to each other make; I see

The heavens laugh with you in your jubilee; My heart is at your festival,

My head hath its coronal,

The fulness of your bliss I feel—I feel

The fulness of your bliss, I feel—I feel it all.
O evil day! if I were sullen

While Earth herself is adorning,
This sweet May-morning,

And the children are culling On every side,

In a thousand valleys far and wide, Fresh flowers; while the sun shines warm,

And the babe leaps up on his mother's arm.

I hear, I hear, with joy I hear!

But there's a tree, of many one,

A single field which I have looked upon; Both of them speak of something that is gone:

The Pansy at my feet
Doth the same tale repeat:

Whither is fled the visionary gleam? Where is it now, the glory and the dream?

POEMS: SONGS: BALLADS: VERSES AND RHYMES WITH MUSIC

Then he begins to think what these remembered visions of his vanished childhood may mean. In this great stanza he sets forth his thoughts. We may have lived before, and as in manhood we catch fleeting visions of our childhood, so may we have faint visions of a previous existence.

OUR birth is but a sleep and a forgetting: The Soul that rises with us, our life's

Hath had elsewhere its setting,
And cometh from afar:
Not in entire forgetfulness,
And not in utter nakedness.

But trailing clouds of glory do we come From God, who is our home;

Heaven lies about us in our infancy!
Shades of the prison-house begin to close
Upon the growing Boy,

But He beholds the light, and whence it flows,

He sees it in his joy;

The Youth, who daily farther from the east
Must travel, still is Nature's priest,
And by the vision splendid
Is on his way attended;

At length the Man perceives it die away, And fade into the light of common day.

It may be, the poet suggests, that our present existence here on Earth, with all its distractions and pleasures, has dulled in us the memory of the "imperial palace," or heaven, whence our souls have come, just as the experience of manhood and age dulls in us the memories of our childhood.

EARTH fills her lap with pleasures of her own:

Yearnings she hath in her own natural kind,

And, even with something of a mother's mind.

And no unworthy aim,

The homely Nurse doth all she can To make her foster-child, her inmate Man,

Forget the glories he hath known, And that imperial palace whence he came.

The thought expressed in the previous stanza is followed farther in the next. But we are to remember that the poet never asserts as a fact that he believes in a past existence. The idea is a very old one and is a feature of some religions, such as Buddhism, and the poet suggests it for a poetic purpose which will presently be made clear to us.

Behold the Child among his new-born blisses.

A six years' darling of a pigmy size! See, where 'mid work of his own hand he lies.

Fretted by sallies of his mother's kisses, With light upon him from his father's eyes! See, at his feet, some little plan or chart, Some fragment from his dream of human life,

Shaped by himself with newly-learned art;

A wedding or a festival, A mourning or a funeral;

And this hath now his heart,

And unto this he frames his song:
Then will he fit his tongue

To dialogues of business, love, or strife; But it will not be long

Ere this be thrown aside,
And with new joy and pride

The little actor cons another part;
Filling from time to time his "humorous stage"

With all the Persons, down to palsied Age, That Life brings with her in her equipage;

As if his whole vocation Were endless imitation.

The poet now addresses the child. The little boy, the little girl, is the greatest wonder of the world! For in its little body is the seed of everlasting life; it is "glorious in the sight of heaven-born freedom"; but, as the years grow upon it and make the wonders of the world commonplaces to it, it will become ever less conscious of these wonders.

THOU, whose exterior semblance doth belie

Thy soul's immensity;

Thou best Philosopher, who yet dost keep Thy heritage; thou Eye among the blind, That, deaf and silent, read'st the eternal deep.

Haunted for ever by the eternal mind:

Mighty Prophet! Seer blest!
On whom those truths do rest
Which we are toiling all our lives to find,
In darkness lost, the darkness of the grave;
Thou, over whom the Immortality

Thou, over whom thy Immortality Broods like the Day, a master o'er a slave, A presence which is not to be put by; Thou little Child, yet glorious in the might Of heaven-born freedom on thy being's

height,
Why with such earnest pains dost thou provoke

The years to bring the inevitable yoke, Thus blindly with thy blessedness at strife? Full soon thy soul shall have her earthly

freight,
And custom lie upon thee with a weight,
Heavy as frost, and deep almost as life!
Yet, just as at times these visions of our childhood rise again
in our mind, so must we in our later years, when our knowledge is ripened, realise that these visions have a mighty
power in opening for us the very gateways of immortality.
They are not so much to be regarded as glimpses of a life
that is past as of an immortal life of the soul which endures
for ever. The very fact that such thoughts ever arise in us
is a proof that there exists for us some other life beyond
the life we are living in this world today. They are like the
echoes of a great sea; that sea is the immortal life of the
soul, and death is but the beginning of our heavenly voyage.

O Joy! that in our embers
Is something that doth live,
That nature yet remembers
What was so fugitive!

The thought of our past years in me doth breed

Perpetual benediction; not indeed For that which is most worthy to be blest: Delight and liberty, the simple creed Of childhood, whether busy or at rest, With new-fledged hope still fluttering in

his breast: Not for these I raise The song of thanks and praise; But for those obstinate questionings Of sense and outward things, Fallings from us, vanishings;

Blank misgivings of a Creature Moving about in worlds not realised, High instincts before which our mortal Nature

Did tremble like a guilty thing surprised: But for those first affections, Those shadowy recollections,

Which, be they what they may, Are yet the fountain-light of all our day, Are yet a master-light of all our seeing; Uphold us, cherish, and have power to

Our noisy years seem moments in the being Of the eternal Silence; truths that wake, To perish never;

Which neither listlessness, nor mad endeavour.

Nor Man nor Boy, Nor all that is at enmity with joy, Can utterly abolish or destroy!

Hence in a season of calm weather, Though inland far we be,

Our souls have sight of that immortal sea Which brought us hither,

Can in a moment travel thither, And see the children sport upon the shore, And hear the mighty waters rolling evermore.

Thus at last, in our old age, even when worldly knowledge may have dulled our childhood's memories, the joyous feelings of our early years may yet awaken within us, and our ripened senses should tell us that these feelings are the very truth of God speaking to us, not in words, but in a way no words can speak, of the immortal life to which we are born, if we only have "the faith that looks through death."

THEN sing, ye Birds, sing, sing a joyous

And let the young Lambs bound As to the tabor's sound!

We in thought will join your throng, Ye that pipe and ye that play, Ye that through your hearts today Feel the gladness of the May!

What though the radiance which was once so bright

Be now for ever taken from my sight, Though nothing can bring back the hour Of splendour in the grass, of glory in the flower:

We will grieve not, rather find Strength in what remains behind; In the primal sympathy Which having been must ever be; In the soothing thoughts that spring Out of human suffering; In the faith that looks through death.

In years that bring the philosophic mind.

So that in the end, when we are old, if we have preserved our faith, though we may have lost the keen sense of wonder and delight we enjoyed in childhood, we shall still, in a different way, rejoice in all God's creation; and find it touching our hearts with feelings of deeper beauty.

AND O, ye Fountains, Meadows, Hills, and Groves,

Forebode not any severing of our loves! Yet in my heart of hearts I feel your might; I only have relinquished one delight To live beneath your more habitual sway.

I love the Brooks which down their channels fret,

Even more than when I tripped lightly as they;

The innocent brightness of a new-born Day Is lovely yet;

The Clouds that gather round the setting sun

Do take a sober colouring from an eye That hath kept watch o'er man's mortality; Another race hath been, and other palms are won.

Thanks to the human heart by which we live,

Thanks to its tenderness, its joys, and fears,

To me the meanest flower that blows can give

Thoughts that do often lie too deep for

#### FREEDOM

The idea that freedom is something which, once for all, can be gained, held, and kept as a fixed possession is combated by James Russell Lowell the famous American poet, in these lines from one of his poems. Freedom he says must be constantly renewed to suit new circumstances. E are not free: doth Freedom, then,

consist In musing with our faces toward the Past, While petty cares and crawling interests

Their spider-threads about us, which at

Grow strong as iron chains, to cramp and bind

In formal narrowness heart, soul, and mind.

Freedom is recreated year by year, In hearts wide open on the Godward side.

#### THE DONKEY

In these famous verses Mr. G. K. Chesterton begins, as so many do, by belabouring the patient ass sorely; but he makes a liberal recompense in his reminder of the glorious time when an ass carried Jesus into Jerusalem in the hour of His triumphal entry into that city, when the people acclaimed Him with Hosannas and strewed palms in His path.

WHEN fishes flew and forests walked And figs grew upon thorn,

Some moments when the moon was blood, Then surely I was born.

With monstrous head and sickening cry And ears like errant wings, The devil's walking parody On all four-footed things.

The tattered outlaw of the earth,
Of ancient crooked will;
Starve, scourge, deride me: I am dumb,
I keep my secret still.

Fools! For I also had my hour; One far fierce hour and sweet: There was a shout about my ears, And palms before my feet.

#### THE HEATHER

Scotland has appropriated the heather. There is plenty of it in England, here and there, and wherever it grows it captures the fancy and the heart, but Scotland reserves it as really hers. Neil Munro, novelist and poet, is a Scot of Scots, and here he gives us a fine poetic glimpse of the national feeling for the national garniture.

If I were King of France, that noble fine land,

And the gold was elbow deep within my chests,

And my castles lay in scores along the wine-land

With towers as high as where the eagle nests;

If harpers sweet, and swordsmen stout and vaunting,

My history sang, my stainless tartan wore,

Was not my fortune poor, with one thing wanting,

The heather at my door?

My galleys might be sailing every ocean, Robbing the isles, and sacking hold and keep.

My chevaliers go prancing at my notion, To bring me back of cattle, horse, and sheep;

Fond arms be round my neck, the young heart's tether,

And true love-kisses all the night might fill.

But oh! mochree, if I had not the heather Before me on the hill! A hunter's fare is all I would be craving, A shepherd's plaiding and a beggar's pay.

If I might earn them where the heather,

waving,

Gave fragrance to the day.

The stars might see me, homeless one and weary,

Without a roof to fend me from the dew, And still content, I'd find a bedding cheery Where er the heather grew!

#### THE DAFFODILS

No poet has felt a kinship with Nature more intensely and intimately than Wordsworth. This fine illustration of the appeal of natural beauty to the heart of man was written in 1804, when Wordsworth's poetic genius was at its height. The dancing daffodils carpeted a meadow skirting the lovely lake of Ullswater, and remained to him an unfading memory.

WANDERED lonely as a cloud
That floats on high o'er vales and hills,
When all at once I saw a crowd,
A host, of golden daffodils

A host, of golden daffodils; Beside the lake, beneath the trees, Fluttering and dancing in the breeze.

Continuous as the stars that shine And twinkle on the Milky Way, They stretched in never-ending line

Along the margin of a bay: Ten thousand saw I at a glance, Tossing their heads in sprightly dance.

The waves beside them danced; but they Out-did the sparkling waves in glee:
A poet could not but be gay

In such a jocund company;
I gazed, and gazed, but little thought
What wealth the show to me had brought:

For oft when on my couch I lie,
In vacant or in pensive mood,
They flash upon that inward eye
Which is the bliss of solitude;
And then my heart with pleasure fills,
And dances with the daffodils.

#### THE LAW THE LAWYERS KNOW ABOUT

The narrow limits of classified knowledge that is proud of itself are here happily exposed by H. D. C. Pepler, who realises that the simple things we do not know are more numerous than the things we do know and understand.

The law the lawyers know about Is property and land; But why the leaves are on the trees, And why the winds disturb the seas, Why honey is the food of bees, Why horses have such tender knees, Why winters come and rivers freeze, Why Faith is more than what one sees, And Hope survives the worst disease, And Charity is more than these, They do not understand.

#### IF I FALL

These eight lines, which contain a noteworthy thought for everyone, are from the graceful pen of Jane Begbie.

Ir I fall
I hinder all;
If I rise
To the skies
I shall help to drag the load
One step farther on the road,
On the common road we climb,
Dead and living for all time.

#### THE BUGLE

The hope of the world has its perennial spring in the heart of youth. This cheering thought is here given the music of rhyme and the ring of faith by Harold Begbie. The poem was specially written for the Children's Newspaper.

Who stands upon the mountain's crest,
Heir of the burning sun,
And with a trumpet at his lips
Blows every call save one?
'Tis Youth, whom none can overthrow,
And nothing shall defeat;
Hark how his lifted trumpet sounds
All calls except Retreat.

The terrors of black night descend
Upon that steadfast form;
Fierce flash the lightnings, thunders roll,
The chariot of the storm;
But firmer still on that wild crag
Youth plants his golden feet,
And lifts his trumpet to his lips,
And never sounds Retreat.

The night shall pass, the dawn will come; Fear not, ye trembling old, Man's path lies upward through the stars, And heaven is for the bold! Youth's trumpet rings from height to height. On to the Judgment Seat!

On to the Judgment Seat!
Only the coward soul would sound
The traitor call Retreat!

Youth faces always to the Light,
Great courage fills his heart,
Ever for him the sun will shine,
Ever the night depart:
His faith is in the power of Right,
His Truth no shame can cheat;
Ten thousand times he'd rather die
Than sound a base Retreat.

His trumpet rings wherever Right
Goes up to conquer Wrong:
Old Science hears it at his toil,
The Poet through his song;
In garrets where brave Genius starves,
And on through street to street,
The trumpet of the mountain calls:
"On, Pilgrim! No retreat!"

#### ENGLAND AND AMERICA IN 1782

In these verses Tennyson expresses the feeling of all thoughtful men of the British Isles towards the Americans in their struggle for liberty near the end of the eighteenth century. British people should be proud that their American descendants inherited a love of freedom strong enough to defy the Motherland when she was tyrannous. John Hampden will be regarded as the whole world's champion of freedom to the very end of time.

O THOU, that sendest out the man
To rule by land and sea,
Strong mother of a Lion-line,
Be proud of those strong sons of thine
Who wrenched their rights from thee!

What wonder if in noble heat
Those men thine arms withstood,
Retaught the lesson thou hadst taught,
And in thy spirit with thee fought,
Who sprang from English blood!

But thou rejoice with liberal joy,
Lift up thy rocky face,
And shatter, when the storms are black,
In many a streaming torrent back,
The seas that shock thy base!

Whatever harmonies of law
The growing world assume,
Thy work is thine—The single note
From that deep chord which Hampden
smote
Will vibrate to the doom.

#### WILLIAM BLAKE

This poem by James Thomson represents in some measure, but not with completeness, the isolation of William Blake. Blake was not unknown, nor was he unappreciated. His aloofness from men arose from the mystical character of his mind. His ideas and his art were not readily understood even by his friends, but he was far from friendless. Unlike the writer of these verses, "the poet of despair," Blake was happy in his mental isolation.

He came to the desert of London town Grey miles long;
He wandered up and he wandered down,
Singing a quiet song.

He came to the desert of London town, Mirk miles broad; He wandered up and he wandered down, Ever alone with God.

There were thousands and thousands of human kind
In this desert of brick and stone;
But some were deaf and some were blind,
And he was there alone.

At length the good hour came; he died As he had lived, alone: He was not missed from the desert wide; Perhaps he was found at the Throne.

7029

#### HOW LANG AND DREARY IS THE NIGHT

The poet's habit of attributing his own feelings to his surroundings is often seen in the songs of Robert Burns, and in these longing memories we are given an example of it:

How lang and dreary is the night When I am frae my dearie!
I restless lie frae e'en to morn,
Tho' I were ne'er sae weary.

For oh, her lanely nights are lang; And oh, her dreams are eerie; And oh, her widowed heart is sair, That's absent frae her dearie.

When I think on the lightsome days I spent wi' thee, my dearie, And now that seas between us roar, How can I be but eerie!

How slow ye move, ye heavy hours; The joyless day how drearie! It wasna sae ye glinted by When I was wi' my dearie.

## LINES WRITTEN IN KENSINGTON GARDENS

Matthew Arnold was a singularly all-round man, a scholar, a critic, a poet, but far more than only a man of books. In this poem we see him lying in Kensington Gardens, in the season when sheep are turned into that great London park to crop the grass among the stately trees. And there, encircled by London, he finds himself one with Nature, that never betrays the heart that loves her and feels a larger peace than is known in the busy racket of the world of men. It is a lesson sweet and true, and is put by the poet into words that constantly have a surprising grace.

In this lone open glade I lie,
Screened by deep boughs on either
hand:

And at its end, to stay the eye,

Those black-crowned, red-boled pine trees stand.

Birds here make song, each bird has his, Across the girdling city's hum. How green under the boughs it is! How thick the tremulous sheep-cries come!

Sometimes a child will cross the glade To take his nurse his broken toy; Sometimes a thrush flit overhead Deep in her unknown day's employ.

Here at my feet what wonders pass, What endless, active life is here! What blowing daisies, fragrant grass! An air-stirred forest, fresh and clear.

Scarce fresher is the mountain sod Where the tired angler lies, stretched out,

And, eased of basket and of rod, Counts his day's spoil, the spotted trout. In the huge world which roars hard by
Be others happy, if they can!
But in my helpless cradle I
Was breathed on by the rural Pan.

I, on men's impious uproar hurled,
Think often, as I hear them rave,
That peace has left the upper world,
And now keeps only in the grave.

Yet here is peace for ever new!
When I who watch them am away,
Still all things in this glade go through
The changes of their quiet day.

Then to their happy rest they pass;
The flowers upclose, the birds are fed,
The night comes down upon the grass,
The child sleeps warmly in his bed.

Calm soul of all things! make it mine To feel, amid the city's jar, That there abides a peace of thine Man did not make, and cannot mar!

The will to neither strive nor cry,
The power to feel with others give!
Calm, calm me more! nor let me die
Before I have begun to live.

#### BREATHES THERE THE MAN

These are the opening lines of the final Canto of Sir Walter Scott's Lay of the Last Minstrel. The aged harper is asked why he being so skilful, does not journey to England, where he would be better rewarded. His reply is this outburst of patriotic fervour Such national pride is felt by men of almost every country, but it has seldom been expressed so ardently as it is by Scott in these lines.

Breathes there the man with soul so dead,

Who never to himself hath said,
This is my own, my native land?
Whose heart hath ne'er within him burned
As home his footsteps he hath turned

From wandering on a foreign strand? If such there breathe, go, mark him well; For him no Minstrel raptures swell; High though his titles, proud his name, Boundless his wealth as wish can claim; Despite those titles, power, and pelf, The wretch, concentred all in self, Living, shall forfeit fair renown, And, doubly dying, shall go down To the vile dust from whence he sprung, Unwept, unhonoured, and unsung.

O Caledonia! stern and wild, Meet nurse for a poetic child! Land of brown heath and shaggy wood, Land of the mountain and the flood, Land of my sires! what mortal hand Can e'er untie the filial band That knits me to thy rugged strand!

#### THE BELLS OF HEAVEN

Ralph Hodgson has made himself one of the most sympathetic interpreters of animal life among our poets. Here is a bold outburst against the shameful oppression of animals, wild and tame, which is tolerated in these days

Twould ring the bells of Heaven,
The wildest peal for years,
If Parson lost his senses
And people came to theirs,
And he and they together
Knelt down with angry prayers
For tamed and shabby tigers,
And dancing dogs and bears,
And wretched, blind pit-ponies,
And little hunted hares.

#### IT WILL END IN THE RIGHT

Gerald Massey, who in youth was a working man, and became a vigorous patriotic poet with a noble love of freedom and a firm faith in the triumph of goodness, wrote verses which have found splendid fulfilment in the present day. Here is an example. Massey lived from 1828 to 1907.

Never despair, O my comrades in sorrow!

I know that our mourning is ended not. Yet

Shall the vanquished today be the victors tomorrow,

Our star shall shine on in the tyrant's sunset.

Hold on, though they spurn thee, for whom thou art living

A life only cheered by the lamp of its love; Hold on! Freedom's hope to the bounden ones giving;

Green spots in the waste wait the worn

spirit-dove. Hold on—still hold on—in the world's

despite,
Nurse the faith in thy heart, keep the
lamp of Truth bright,

And, my life for thine, it shall end in the Right.

What though the martyrs and prophets have perished!

The Angel of Life rolls the stone from their graves;

Immortal's the faith and the freedom they cherished,

Their lone triumph cry stirs the spirits of slaves!

They are gone, but the glory is left in our life,

Like the day-god's last kiss on the darkness of even,

Gone down on the desolate seas of their strife,

To climb as star-beacons up Liberty's heaven.

Think of the wrongs that have ground us for ages!

Think of the wrongs we have still to endure!

Think of our blood, red on history's pages!

Then work, that our reckoning be speedy and sure.

Slaves cry to their gods, but be our God revealed

In our lives, in our works, in our warfare for man;

And bearing—or born upon—Victory's shield,

Let us fight battle-harnessed, and fall in the van.

Hold on, still hold on, in the world's despite,

Nurse the faith in thy heart, keep the lamp of Truth bright,

And, my life for thine, it shall end in the Right.

#### A FAREWELL

These verses were written by Tennyson to the brook at Somersby, in Lincolnshire, the place where he was born—the brook which he described in a longer poem and more cheerful strain. The permanence of Nature contrasted with the short life of man has been a theme for all poets.

Flow down, cold rivulet, to the sea,
Thy tribute wave deliver;
No more by thee my steps shall be,
For ever and for ever.

Flow, swiftly flow, by lawn and lea, A rivulet, then a river:

Nowhere by thee my steps shall be,

For ever and for ever.

But here will sigh thine alder tree, And here thine aspen shiver; And here by thec will hum the bee. For ever and for ever.

A thousand suns will stream on thee, A thousand moons will quiver; But not by thee my steps shall be, For ever and for ever.

#### MUSIC, WHEN SOFT VOICES DIE

This charming little song, illustrating the delights of happy memories, is a scrap by Shelley published after his death-

Music, when soft voices die, Vibrates in the memory; Odours, when sweet violets sicken, Live within the sense they quicken.

Rose leaves, when the rose is dead, Are heaped for the beloved's bed; And so thy thoughts, when thou art gone. Love itself shall slumber on.

#### THE THREE GIVERS

The fact that he has the blessing of an Irish wife has helped Sir William Watson to one of the most graceful compliments ever paid by a poet-husband. These verses are from Sir William's own selection of a hundred of his poems, which are published by Messrs Hodder and Stoughton.

E NGLAND gave me sun and storm,
The food whereon my spirit throve;
America gave me hand-grasps warm,
And Ireland gave me her I love.

Heirs of unequal wealth they are,
These noble lands, these givers three;
And it was the poorest one by far
That gave the richest gift to me.

#### TO THE CUCKOO

These verses to the cuckoo, written by Wordsworth in 1802, and containing some admirable touches of description, transport the poet, as was his custom, to his boyhood, when all Nature's sights and sounds thrilled him with a sense of romance. But it is strange that, often as he heard the bird, he never happened to see it in his boyhood. Like the corncrake, the cuckoo seems to be something of a ventriloquist, but, unlike that ground bird, it can be easily seen.

O BLITHE new-comer! I have heard, I hear thee and rejoice.
O Cuckoo! shall I call thee bird,
Or but a wandering voice?

While I am lying on the grass
Thy twofold shout I hear;
From hill to hill it seems to pass,
At once far off and near.

Though babbling only to the vale Of sunshine and of flowers, Thou bringest unto me a tale Of visionary hours.

Thrice welcome, darling of the Spring!
Even yet thou art to me
No bird, but an invisible thing,
A voice, a mystery;

The same whom in my schoolboy days I listened to; that cry Which made me look a thousand ways In bush, and tree, and sky.

To seek thee did I often rove
Through woods and on the green;
And thou wert still a hope, a love;
Still longed for, never seen.

And I can listen to thee yet; Can lie upon the plain And listen, till I do beget That golden time again.

O blessed bird! the earth we pace Again appears to be
An unsubstantial, fairy place;
That is fit home for thee!

#### LET US WITH A GLADSOME MIND

When he was a schoolboy of fifteen, as he himself tells us, John Milton wrote this paraphrase of Psalm 136. We omit twelve verses of Israelitish history. The paraphrase, though it does not follow the original closely and has not the tull melody of the poet's later style, shows signs of the imagination that was to be fully displayed in later life, and is an interesting example of boyish workmanship.

Let us with a gladsome mind
Praise the Lord, for he is kind,
For his mercies ay endure,
Ever faithful, ever sure.

Let us blaze his name abroad. For of Gods he is the God:

O let us his praises tell Who doth the wrathful tyrants quell.

Who with his miracles doth make Amazed heaven and earth to shake:

Who by his wisdom did create The painted heavens so full of state:

Who did the solid Earth ordain To rise above the watery plain:

Who by his all-commanding might Did fill the new-made world with light:

And caused the golden-tressed Sun All the day long his course to run:

The horned Moon to shine by night Amongst her spangled sisters bright:

All living creatures he doth feed, And with full hand supplies their need:

Let us therefore warble forth His mighty majesty and worth:

That his mansion hath on high Above the reach of mortal eye: For his mercies ay endure, Ever faithful, ever sure.

#### ORPHEUS AND HIS LUTE

This song, describing the power of music according to ancient fables. is from the play of Henry the Eighth, printed in Shakespeare's works but only partly written by Shakespeare. The song is from the scene which was probably not written by him. Killing is here an adjective.

ORPHEUS with his lute made trees,
And the mountain-tops that freeze,
Bow themselves when he did sing:
To his music plants and flowers
Ever sprung; as sun and showers
There had made a lasting spring.

Everything that heard him play,
Even the billows of the sea,
Hung their heads, and then lay by.
In sweet music is such art,
Killing care and grief of heart
Fall asleep, or, hearing, die.

#### WORLD-STRANGENESS

Sir William Watson, the writer of this confession of a poet's sense of homelessness in the world, is one of our foremost writers of the grave, classical style of English verse. In serious thought, dignity, and the rich grace that is not a passing fashion, he stands apart. He has himself made from his poems a selection of a hundred by which he would be judged; they are published by Hodder and Stoughton.

STRANGE the world about me lies, Never yet familiar grown: Still disturbs me with surprise, Haunts me like a face half known.

In this house with starry dome,
Floored with gemlike plains and seas,
Shall I never feel at home,
Never wholly be at ease?

On from room to room I stray, Yet my Host can ne'er espy, And I know not to this day Whether guest or captive I.

So, between the starry dome
And the floor of plains and seas,
I have never felt at home,
Never wholly been at ease.

#### THE TWELVE-FORTY-FIVE

Joyce Kilmer, an American poet who was one of the saddest losses in the Great War, was a newspaper man who regularly caught a homeward train after midnight, and was one of the few who found poetry in a familiar railway ride. These lines are from a poem showing vividly how the 12.45 train in the dead of night appealed to him.

WITHIN the Jersey City shed
The engine coughs and shakes its
head.

The smoke, a plume of red and white, Waves madly in the face of night. And now the grave, incurious stars Gleam on the groaning, hurrying cars. Against the kind and awful reign Of darkness, this our angry train, A noisy little rebel, pouts Its brief defiance, flames and shouts; And passes on, and leaves no trace, For darkness holds its ancient place, Serene and absolute, the king, Unchanged, of every living thing.

The houses lie obscure and still In Rutherford and Carlton Hill. Our lamps intensify the dark Of slumbering Passaic Park. And quiet holds the weary feet That daily tramp through Prospect Street. What though we clang and clank and roar Through all Passaic's streets? No door Will open, not an eye will see Who this loud vagabond may be. Upon my crimson-cushioned seat, In manufactured light and heat,

I feel unnatural and mean. Outside the towns are cool and clean; Curtained awhile from sound and sight, They take God's gracious gift of night.

But of it let this thing be told, To its high honour be it said, It carries people home to bed. My cottage lamp shines white and clear; God bless the train that brought me here!

#### THE ROCK-A-BY LADY

Eugene Field, the American poet of childhood, had the rare gift of giving sweet singing words to the daintiest fancies of little children. Here we see how he could give a personal form to the influences which soothe the tired child into slumber. The poetry of a child going to sleep after the toy-born dreams of the day has never been caught more tenderly and sweetly than in these four verses.

THE Rock-a-by Lady from Hush-a-by Street

Comes stealing, comes creeping; The poppies they hang from her head to

her feet, And each hath a dream that is tiny and

fleet; She bringeth her poppies to you, my sweet.

When she findeth you sleeping!

There is one little dream of a beautiful drum,

"Rub-a-dub!" it goeth;

There is one little dream of a big sugarplum,

And lo! thick and fast the other dreams come

Of pop-guns that bang and tin tops that hum,

And the trumpet that bloweth!

And dollies peep out of those wee little dreams

With laughter and singing;

And boats go a-floating on silvery streams, And the stars peek-a-boo with their own misty gleams.

And up, up, and up, where the Mother Moon beams,
The fairies go winging!

Would you dream all these dreams that are tiny and fleet?

They'll come to you sleeping; So shut the two eyes that are weary, my sweet,

For the Rock-a-by Lady from Hush-a-by

With poppies that hang from her head to her feet,

Comes stealing, comes creeping.

#### SHE WALKS IN BEAUTY

That Byron could write with all the charm of the Elizabethan masters of song may be seen in this sketch.

She walks in beauty, like the night
Of cloudless climes and starry skies;
And all that's best of dark and bright
Meet in her aspect and her eyes:
Thus mellowed to that tender light
Which heaven to gaudy day denies.

One shade the more, one ray the less,
Had half impaired the nameless grace
Which waves in every raven tress,
Or softly lightens o'er her face;
Where thoughts serenely sweet express
How pure, how dear, their dwellingplace.

And on that cheek, and o'er that brow,
So soft, so calm, yet eloquent,
The smiles that win, the tints that glow,
But tell of days in goodness spent,
A mind at peace with all below,
A heart whose love is innocent!

GLORY TO THEE, MY GOD, THIS NIGHT The writer of this oldest and best of evening hymns, Bishop Thomas Ken, was such a man as the writer of such a hymn ought to have been. He was honest to the core, and fearless in support of what he felt to be right. Ken's morning and evening hymns were written, in 1674, for the boys of Winchester school, where he had been educated. Ken was one of the bishops who were sent to the Tower by the wretched James the Second; yet he would not take the oath to William the Third when he superseded James. The respect he commanded during his life has never waned

CLORY to Thee, my God, this night For all the blessings of the light; Keep me, O keep me, King of kings, Beneath Thy own almighty wings.

Forgive me, Lord, for Thy dear Son, The ill that I this day have done, That with the world, myself, and Thee I, ere I sleep, at peace may be.

Teach me to live, that I may dread The grave as little as my bed; Teach me to die, that so I may Rise glorious at the awful day.

O may my soul on Thee repose, And may sweet sleep mine eyelids close, Sleep that may me more vigorous make To serve my God when I awake.

When in the night I sleepless lie My soul with heavenly thoughts supply; Let no ill dreams disturb my rest, No powers of darkness me molest.

Praise God, from whom all blessings flow, Praise Him, all creatures here below: Praise Him above, Angelic host; Praise Father, Son, and Holy Ghost.

#### AT THE GATE

The writer of these lines, whose name is Colwyn Philipps, expresses here the feeling, which must come to us all at times, that we can never really completely know each other, however much we may wish to do so.

A WALL and gulf for ever lie between.

Not all that we may do through love or wit

Can quite avail to pull away the screen,
Nor yet succeed in bridging o'er the pit.
He knows the reason, He that ordered it,
Who made us love but never understand.
He fixed the barrier as He saw fit,

And bade us yearn and still stretch forth the hand

Across the very sea He said should ne'er be spanned.

Be sure this great and aching love of mine, That ever yearns to know and to be known,

Can tear the veil that sometimes seems so fine

As though 'twere cobweb waiting but the blow

To fall asunder and for ever go.

E'en as I rise to strike it is too late, The cobwebs billow, thicken, seem to

To a thick wall with buttress tall and great.

I stand alone, a stranger at a city gate.

#### A MILE WITH ME

This sketch of the qualities that are most helpful in a friend is from the pen of Dr. Henry Van Dyke, one of America's best known poets and ambassadors. He was United States Minister to the Netherlands and Luxemburg from 1913 to 1917.

O who will walk a mile with me
Along life's merry way?
A comrade blithe and full of glee,
Who dares to laugh out loud and free,
And let his frolic fancy play,
Like a happy child, through the flowers
gay

That fill the field and fringe the way Where he walks a mile with me.

And who will walk a mile with me
Along life's weary way?
A friend whose heart has eyes to see
The stars shine out o'er the darkening lea,
And the quiet rest at the end o' the day—
A friend who knows, and dares to say
The brave, sweet words that cheer the
way

Where he walks a mile with me.
With such a comrade, such a friend,
I fain would walk till journey's end,
Through summer sunshine, winter rain,
And then? Farewell, we shall meet again!

7034

#### **BLOSSOMS**

The graceful flow of Robert Herrick's fancy is charmingly seen in this brief song on the fragility of much that is beautiful. He pleads with the blossoms to stay a little while.

FAIR pledges of a fruitful tree,
Why do ye fall so fast?
Your date is not so past,
But you may stay yet here awhile
To blush and gently smile,
And go at last.

What! were ye born to be
An hour or half's delight,
And so to bid good-night?
'Twas pity Nature brought ye forth
Merely to show your worth,
And lose you quite.

But you are lovely leaves, where we May read how soon things have Their end, though ne'er so brave: And after they have shown their pride Like you awhile, they glide Into the grave.

#### THE MINISTRY OF ANGELS

This lovely poetical setting of the idea of angelic guardianship of human creatures occupies the first two stanzas of the eighth canto of the second book of Edmund Spenser's great poem The Faerie Queene. published in 1590.

And is there care in Heaven? And is there love

In heavenly spirits to these creatures base

That may compassion of their evils move? There is—else much more wretched were the case

Of men than beasts. But O! th' exceeding grace

Of highest God, that loves His creatures

And all His works with mercy doth embrace,

That blessed angels He sends to and fro To serve to wicked man, to serve his wicked foe!

How oft do they their silver bowers leave To come to succour us, that succour want? How oft do they with golden pinions cleave

The flitting skies, like flying pursuivant, Against foul fiends to aid us militant? They for us fight, they watch and duly

ward,

And their bright squadrons round about us plant;

And all for love, and nothing for reward:
O why should heavenly God to men have such regard?

#### LITTLE BOY BLUE

Among the tender poems about childhood that have touched the heart of the world none takes a dearer place than this, by Eugene Field, on the toys of Little Boy Blue.

THE little toy dog is covered with dust, But sturdy and staunch he stands; The little toy soldier is red with rust,

And his musket moulds in his hands. Time was when the little toy dog was new, And the soldier was passing fair;

And that was the time when our Little Boy Blue

Kissed them and put them there.

"Now, don't you go till I come," he said,
"And don't you make any noise!"
So, toddling off to his trundle-bed,

He dreamt of the pretty toys.

And as he was dreaming an angel song
Awakened our Little Boy Blue:

Oh, the years are many, the years are long, But the little toy friends are true!

Aye, faithful to Little Boy Blue they stand, Each in the same old place,

Awaiting the touch of a little hand, The smile of a little face;

And they wonder, as waiting the long years through

In the dust of that little chair, What has become of our Little Boy Blue Since he kissed them and put them there.

#### LAKE ISLE OF INNISFREE

This call of the life of simplicity and rural beauty to man in a city's throng, expressed in the choicest melody of words by Mr. W. B. Yeats, has found its way into almost every selection of poems in the English tongue. We take these verses from Mr. Yeats's volume of collected works.

WILL arise and go now, and go to Innisfree,

And a small cabin build there, of clay and wattles made;

Nine bean rows will I have there, a hive for the honey bee,

And live alone in the bee-loud glade.

And I shall have some peace there, for peace comes dropping slow,

Dropping from the veils of the morning to where the cricket sings;

There midnight's all a glimmer, and noon a purple glow,

And evening full of the linnet's wings.

I will arise and go now, for always night and day

I hear lake water lapping with low sounds by the shore;

While I stand on the roadway, or on the pavements gray,

I hear it in the deep heart's core.

#### **POETRY**

#### FIDELITY

Among the numberless poems in which the fidelity of the dog is celebrated this by Wordsworth takes a high place. There are many instances of dogs that have shown as great fidelity to their masters as the traveller's dog here described, and they are all worthy of the poet's praise.

A BARKING sound the shepherd hears, A cry as of a dog or fox; He halts, and searches with his eyes Among the scattered rocks: And now at distance can discern A stirring in a brake of fern; And instantly a dog is seen, Glancing through that covert green.

The dog is not of mountain breed; Its motions, too, are wild and shy; With something, as the shepherd thinks, Unusual in its cry:
Nor is there anyone in sight
All round, in hollow or on height;
Nor shout, nor whistle, strikes his ear:
What is the creature doing here?

It was a cove, a huge recess,
That keeps, till June, December's snow;
A lofty precipice in front,
A silent tarn below;
Far in the bosom of Helvellyn,
Remote from public road or dwelling,
Pathway, or cultivated land;
From trace of human foot or hand.

There sometimes doth a leaping fish Send through the tarn a lonely cheer; The crags repeat the raven's croak, In symphony austere; Thither the rainbow comes, the cloud, And mists that spread the flying shroud; And sunbeams; and the sounding blast, That, if it could, would hurry past; But that enormous barrier holds it fast.

Not free from boding thoughts, a while The shepherd stood; then makes his way O'er rocks and stones, following the dog As quickly as he may; Nor far had gone before he found A human skeleton on the ground; The appalled discoverer with a sigh Looks round to learn the history.

From those abrupt and perilous rocks The man had fallen, that place of fear I At length upon the shepherd's mind It breaks, and all is clear: He instantly recalled the name, And who he was, and whence he came; Remembered, too, the very day On which the traveller passed this way.

But hear a wonder, for whose sake
This lamentable tale I tell!
A lasting monument of words
This wonder merits well.
The dog, which still was hovering nigh,
Repeating the same timid cry,
This dog had been through three months'
space
A dweller in that savage place.

Yes, proof was plain that since the day When this ill-fated traveller died, The dog had watched about the spot, Or by his master's side:

How nourished here through such long time

He knows who gave that love sublime; And gave that strength of feeling, great Above all human estimate.

#### SHUFFLE-SHOON AND AMBER-LOCKS

That sweet-minded writer of verses for children, the American Eugene Field, here combines the charm of child-hood with the gentle pathos of old age, the forward dreams of youth and the backward dreams of gracious memory.

Shuffle-Shoon and Amber-Locks Sit together, building blocks; Shuffle-Shoon is old and grey, Amber-Locks a little child; But together at their play Age and youth are reconciled, And with sympathetic glee Build their castles fair to see.

"When I grow to be a man,"
So the wee one's prattle ran,
"I shall build a castle so,
With a gateway broad and grand;
Here a pretty vine shall grow,
There a soldier guard shall stand;
And the tower shall be so high
Folks will wonder, by-and-by!"

Shuffle-Shoon quoth: "Yes, I know; Thus I builded long ago! Here a gate, and there a wall, Here a window, there a door; Here a steeple wondrous tall Riseth ever more and more! But the years have levelled low What I builded long ago!"

So they gossip at their play, Heedless of the fleeting day; One speaks of the Long Ago, Where his dead hopes buried lie; One with chubby cheeks aglow Prattleth of the By-and-by; Side by side they build their blocks, Shuffle-Shoon and Amber-Locks.

#### GOD SAVE THE KING

The British National Anthem has been attributed to Henry Carey, the poet and musician who wrote Sally in Our Alley; but Carey never claimed it as his. It is not poetry, and the second verse is mere doggerel, not far removed from blasphemy, and quite unworthy of a great nation. It refers back to the days when kings were themselves scheming politicians, pretending to wield God-given power. The music, which has a massive plainness, was composed by Dr. John Bull, organist to Queen Elizabeth and James the First. We give here the first and last verses.

God save our gracious King,
Long live our noble King,
God save the King!
Send him victorious,
Happy and glorious,
Long to reign over us,
God save the King!

Thy choicest gifts in store
On him be pleased to pour,
Long may he reign.
May he defend our laws,
And ever give us cause
To sing with heart and voice,
God save the King!

PRAISE TO THE HOLIEST IN THE HEIGHT To feel the power of this hymn by Cardinal Newman it should be heard in its proper setting in his poem The Dream of Gerontius, with the music of Sir Edward Elgar.

PRAISE to the Holiest in the height, And in the depth be praise, In all His words most wonderful, Most sure in all His ways.

O loving wisdom of our God!
When all was sin and shame,
A second Adam to the fight
And to the rescue came.

O wisest love! that flesh and blood, Which did in Adam fail, Should strive afresh against the foe, Should strive and should prevail;

And that a higher gift than grace Should flesh and blood refine, God's presence and His very Self, And Essence all-divine.

O generous love! that He who smote In Man for man the foe The double agony in Man For man should undergo;

And in the garden secretly,
And on the Cross on high,
Should teach His brethren, and inspire
To suffer and to dic.

Praise to the Holiest in the height, And in the depth be praise; In all His words most wonderful, Most sure in all His ways.

#### TO A SKYLARK

Wordsworth wrote two poems to the lark, one To the Skylark (or the whole species) and the other To a Skylark (or a particular bird that influenced his mind as he listened to it). He was downhearted, but the happiness of the bird roused his spirit, and enabled him to feel contented. The poem To the Skylark (see page 4687) is the better known, but this address to the one cheering bird is a happy example of the poet's power of refreshing his soul from Nature.

Up with me! up with me into the clouds! For thy song, Lark, is strong; Up with me! up with me into the clouds! Singing, singing,

With clouds and sky about thee ringing,
Lift me, guide me, till I find
That spot which seems so to thy mind!

I have walked through wildernesses dreary,
And today my heart is weary;
Had I now the wings of a fairy,
Up to thee would I fly.
There is madness about thee, and joy divine.
In that song of thine;
Lift me, guide me, high and high,
To thy banqueting-place in the sky.

Joyous as morning,
Thou art laughing and scorning;
Thou hast a nest for thy love and thy rest,
And, though little troubled with sloth,
Drunken Lark! thou wouldst be loth
To be such a traveller as I.
Happy, happy Liver,
With a soul as strong as a mountain river
Pouring out praise to the almighty Giver,
Joy and jollity be with us both!

Alas! My journey, rugged and uneven, Through prickly moors or dusty ways must wind;

But hearing thee, or others of thy kind, As full of gladness and as free of heaven, I, with my fate contented, will plod on, And hope for higher raptures when life's day is done.

#### PIPPA'S SONG

This lovely and famous early morning song is from a poem by Robert Browning called Pippa Passes. Pippa is an Italian girl who works hard and rarely has a holiday, but when the looked-for day comes she goes out and sings songs wherever she goes, and her passing by has an influence for good on all the people who hear her voice.

The year's at the spring,
And day's at the morn;
Morning's at seven;
The hillside's dew-pearled;
The lark's on the wing;
The snail's on the thorn;
God's in His heaven:
All's right with the world.

#### THE LEAK IN THE DYKE

In Holland the people have continually to keep watch on the sea, as parts of the country are below the level of the water at high tide. To keep the sea from flooding the land great banks were built in these parts of the country. These banks, or dykes—in England a dyke is a ditch, but in the North it means a low stone wall—had to be kept in constant repair. This poem tells the true story of how a little boy, by pressing handfuls of sand and earth into a small breach made in one of the dykes, managed to prevent the sea from widening the breach and flooding the land behind, and thus saved the people from ruin. The writer of the poem was Phoebe Cary, who was born in Ohio in 1824, and was for many years a very popular poet in America.

The good dame looked from her cottage
At the close of the pleasant day,
And cheerily called to her little son,
Outside the door at play:
"Come, Peter, come! I want to see you go,
While there is light to see,
To the hut of the blind old man who lives

Across the dyke for me; And take these cakes I made for him;

They are hot and smoking yet.
You have time enough to go and come
Before the sun is set."

Then the good wife turned to her labour, Humming a simple song, And thought of her husband working hard

At the sluices all day long; And set the turf a-blazing,

And brought the coarse black bread, That he might find a fire at night, And find the table spread.

And Peter left the brother
With whom all day he had played,
And the sister who had watched their sports
In the willow's tender shade;

And told them they'd see him back before
They saw a star in sight,

Though he wouldn't be afraid to go In the very blackest night!

For he was a brave, bright fellow,
With eye and conscience clear;
He could do whatever a boy might do,
And he had not learned to fear.

Why, he wouldn't have robbed a bird's nest,

Nor brought a stork to harm, Though never a law in Holland Had stood to stay his arm!

And now, with his face all glowing
And eyes as bright as the day
With the thoughts of his pleasant errand,
He trudged along the way.
And soon his joyous prattle
Made glad a lonesome place:

Alas! if only the blind old man Could have seen that happy face!

Yet he somehow caught the brightness Which his voice and presence lent; And he felt the sunshine come and go As Peter came and went.

And now, as the day was sinking,
And the winds began to rise,
The mother looked from her door again,
Shading her anxious eyes;
And saw the shadows deepen,
And birds to their homes come back;

But never a sign of Peter
Along the level track.

But she said: "He will come at morning, So I need not fret or grieve, Though it isn't like my boy at all To stay without my leave."

But where was the child delaying?
On the homeward way was he,
And across the dyke while the sun was up
An hour above the sea.

He was stooping now to gather flowers, Now listening to the sound

As the angry waters dashed themselves
Against their narrow bound.

"Ah! well for us," said Peter,
"That the gates are good and strong,
And my father tends them carefully,
Or they would not hold you long!
You're a wicked sea," said Peter;

"I know why you fret and chafe: You would like to spoil our lands and

But our sluices keep you safe!"

But hark! Through the noise of the waters Comes a low, clear, trickling sound; And the child's face pales with terror, And his blossoms drop to the ground.

He is up the bank in a moment,
And, stealing through the sand,
He sees a stream not yet so large
As his slender, childish hand.

'Tis a leak in the dyke! He is but a boy, Unused to fearful scenes;

But, young as he is, he has learned to know The dreadful thing that means. A leak in the dyke! The stoutest heart

Grows faint that cry to hear, And the bravest man in all the land Turns white with mortal fear:

For he knows the smallest leak may grow
To a flood in a single night;

And he knows the strength of the cruel sea When loosed in its angry might.

And the boy! he has seen the danger, And, shouting a wild alarm, He forces back the weight of the sea With the strength of his single arm!

#### **POETRY**

He listens for the joyful sound
Of a footstep passing nigh;
And he lays his ear to the ground to catch
The answer to his cry.

And he hears the rough wind blowing,
And the waters rise and fall,
But never an answer came to him,
Save the echo of his call.
He sees no hope, no succour,
His feeble voice is lost;
Yet what shall he do but watch and wait,
Though he perish at his post!

So, faintly calling and crying
Till the sun is under the sea,
Crying and moaning till the stars
Come out for company,
He thinks of his brother and sister,
Asleep in their safe, warm bed;
He thinks of his father and mother,
Of himself as dying and dead,
And of how, when the night is over,
They must come and find him at last;
But he never thinks he can leave the place
Where duty holds him fast.

The good dame in the cottage
Is up and astir with the light,
For the thought of her little Peter
Has been with her all night.
And now she watches the pathway,
As yester eve she had done;
But what does she see so strange and black
Against the rising sun?
Her neighbours are bearing between them
Something straight to her door:
The child is coming home, but not
As he ever came before!

"He is dead!" she cries. "My darling!"
And the startled father hears,
And comes and looks the way she looks,
And fears the thing she fears.
Till a glad shout from the bearers
Thrills the stricken man and wife:
"Give thanks, for your son has saved our land,
And God has saved his life!"

And God has saved his life!"
So, there in the morning sunshine,
They knelt about the boy;
And every head was bared and bent
In tearful, reverent joy.

'Tis many a year since then; but still, When the sea roars like a flood, Their boys are taught what a boy can do Who is brave, and true, and good. For every man in that country Takes his son by the hand,

And tells him of little Peter,
Whose courage saved the land.
They have many a valiant hero,
Remembered through the years;
But never one whose name so oft
Is named with loving tears.
And his deed shall be sung by the cradle,
And told to the child on the knee,
So long as the dykes of Holland
Divide the land from the sea!

#### CUCKOO SONG

This is the oldest song in the English language. It comes from the first half of the thirteenth century, and shows how men's hearts responded then, as now, to the influences of Spring. Noo, or nu, is an ancient form of our word now, which still keeps its old sound in the Scottish tongue.

SUMER is icumen in,
Lhude sing cuccu!
Groweth sed, and bloweth med,
And springth the wude nu:
Sing cuccu!

Awe bleteth after lomb, Lhouth after calve cu; Bulluc sterteth, bucke verteth, Murie sing cuccu!

Cuccu, cuccu, well singes thu, cuccu;
Ne swike thu naver nu;
Sing cuccu, nu, sing cuccu,
Sing cuccu, sing cuccu, nu!

Summer is a-coming in, Loud sing cuckoo! Groweth seed, and bloweth mead, And springeth the wood new: Sing cuckoo!

Ewe bleateth after lamb, Loweth after calf cow; Bullock starteth, buck verteth, Merry sing cuckoo!

Cuckoo, cuckoo, well singest thou, cuckoo; Nor cease thou ever noo; Sing cuckoo, noo, sing cuckoo, Sing cuckoo, sing cuckoo, noo!

#### TRUST

In his youth Wordsworth was a friend of the French Revolution, but he saw it spoiled and was disillusioned. Forty years later he saw the realisation of things he had hoped for in his youth, and in these lines he tells us the lesson he had learned, a lesson always needed.

Ir this great world of joy and pain Revolve in one sure track; If freedom, set, will rise again, And virtue, flown, come back; Woe to the purblind crew who fill The heart with each day's care; Nor gain, from past or future, skill To bear, and to forbear!

### RHYMES OF THE CHILDREN OF FRANCE

An English version of these rhymes appears side by side with the French

#### FAIS DODO, COLAS

Fais dodo, Colas, mon petit frère, Fais dodo, t'auras du lolo. Maman est en haut, Qui fait du gâteau; Papa est en bas, Qui fait du chocolat; Fais dodo, Colas, mon petit frère, Fais dodo, t'auras du lolo.

#### SUR LE PONT D'AVIGNON

Sur le pont d'Avignon,
L'on y danse, l'on y danse;
Sur le pont d'Avignon,
L'on y danse tous en rond.
Les beaux messieurs font comm' ça,
Et puis encore comm' ça.
Sur le pont d'Avignon,
L'on y danse, l'on y danse;
Sur le pont d'Avignon
L'on y danse tous en rond.
Les belles dames font comm' ça,
Et puis encore comm' ça;
Sur le pont d'Avignon
Tout le monde y danse en rond!

#### RAMÈNE TES MOUTONS

La plus aimable à mon gré
Je vais vous la présenter.
Nous lui ferons passer barrière.
"Ramène tes moutons, bergère;
Rainène, ramène, ramène, donc,
Tes moutons à la maison."

#### LA MÈRE MICHEL

C'EST la mère Michel qui a perdu son chat,

Qui crie par la fenêtre à qui le lui rendra, Et le compère Lustucru qui lui a répondu:

"Ållez, la mère Michel, votre chat n'est pas perdu."

C'est la mère Michel qui lui a demandé: "Mon chat n'est pas perdu l' vous l'ave

"Mon chat n'est pas perdu! vous l'avez donc trouvé?" Et le compère Lustucru qui lui a ré-

pondu:

"Donnez une récompense, il vous sera rendu."

Et la mère Michel lui dit: "C'est décidé, Si vous rendez mon chat, vous aurez un baiser."

Le compère Lustucru, qui n'en a pas voulu,

Lui dit: "Pour un lapin votre chat est vendu!"

#### HUSH-A-BYE, COLIN

HUSH-A-BYE, Colin, brother of mine, Mustn't cry, hush-a-bye.
Mamma's up above,
Making cakes for you, love;
And Daddy, downstairs,
Nice choc'late prepares.
Hush-a-bye, Colin, brother of mine,
Mustn't cry, hush-a-bye.

#### ON THE BRIDGE OF AVIGNON

On the bridge of Avignon,
See them dance, see them dance!
On the bridge of Avignon,
They trip around, retire, advance;
Gallant swains bend low, like this,
And once again do so, like this.
On the bridge of Avignon,
See them dance, see them dance!
On the bridge of Avignon,
They trip around, retire, advance;
Fair ladies curtsey low, like this,
And once again do so, like this.
See them dance, see them dance,
On the bridge of Avignon.

#### BRING BACK YOUR SHEEP

I'll introduce—just wait awhile—
A charming maiden by yon stile.
"Ho! pass this way," aloud we'll mock,
"Shepherdess, lead back your flock;
Lead back, lead back, as you are told,
Your pretty sheep within the fold."

#### MOTHER MITCHELL

MOTHER MITCHELL one day lost her pussy, alack!

And cried out of window: "Oh, who'll bring her back?"

Then old Gaffer Lustucru smilingly said: "Your cat isn't lost—she is merely mislaid."

Mother Mitchell cried, hopefully gazing around her:

"My pussy not lost! Oh, pray, have you found her?"

Then old Gaffer Lustucru answered her pat: "If you give a reward you will soon get your cat."

Said old Mother Mitchell: "'Twould not be amiss,

If you find me my pussy, to give you a kiss."
But sly Gaffer Lustucru much preferred gold.

And said: "As a rabbit your pussy is sold!"

7040

THE LOVABLE CHILD

RISKY as a lambkin, Busy as a bee: That's the kind of little girl People like to see.

Modest as a violet. As a rosebud sweet: That's the kind of little girl People like to meet.

Bright as a diamond, Pure as any pearl: Everyone rejoices in Such a little girl.

Happy as a robin, Gentle as a dove: That's the kind of little girl Everyone will love.

Fly away and seek her, Little song of mine, For I choose that very girl As my valentine. Emilie Poulsson

#### FAITHLESS SALLY BROWN

Voung Ben he was a nice young man, A carpenter by trade; And he fell in love with Sally Brown, That was a lady's maid.

But as they fetched a walk one day They met a press-gang crew; And Sally she did faint away, While Ben he was brought to.

The Boatswain swore with wicked words, Enough to shock a saint, That, though she did seem in a fit, 'Twas nothing but a feint.

Come, girl," said he, "hold up your head,

He'll be as good as me; For when your swain is in our boat A boatswain he will be.'

So when they'd made their game of her, And taken off her elf, She roused, and found she only was A coming to herself.

"And is he gone, and is he gone?" She cried, and wept outright; Then I will to the waterside, And see him out of sight.'

A waterman came up to her; "Now, young woman," said he, "If you weep on so you will make Eye-water in the sea."

"Alas! They've taken my beau Ben To sail with old Benbow." And her woe began to run afresh As if she'd said Gee woe!

Says he, "They've only taken him To the Tender ship, you see." The Tender-ship!" cried Sally Brown. "What a hard-ship that must be!"

Now Ben had sailed to many a place That's underneath the world; But in two years the ship came home, And all her sails were furled.

But when he called on Sally Brown; To see how she went on, He found she'd got another Ben, Whose Christian name was John.

Oh, Sally Brown! Oh, Sally Brown! How could you serve me so? I've met with many a breeze before, But never such a blow."

Then reading on his bacco box, He heaved a bitter sigh; And then began to eye his pipe, And then to pipe his eye.

And then he tried to sing "All's well," But could not, though he tried; His head was turned, and so he chewed His pigtail till he died.

His death, which happened in his berth, At forty-odd befell: They went and told the sexton, and The sexton tolled the bell.

THE OWL AND THE EEL:

Thomas Hood

THE owl and the eel and the warming-They went to call on the soap-fat man. The soap-fat man he was not within: He'd gone for a ride on his rolling-pin. So they all came back by the way of the town. And turned the meeting-house upside Laura E. Richards

CITY MOUSE AND GARDEN MOUSE

down.

HE city mouse lives in a house, . . , The garden mouse lives in a bower; He's friendly with the frogs and toads, And sees the pretty plants in flower.

The city mouse eats bread and cheese, The garden mouse eats what he can; We will not grudge him seeds and stocks, Poor little timid, furry man. Christina Georgina Rossetti

MOON, SO ROUND AND YELLOW

Moon, so round and yellow, Looking from on high, How I love to see you Shining in the sky. Oft and oft I wonder, When I see you there, How they get to light you. Hanging in the air:

Where you go at morning, When the night is past, And the sun comes peeping O'er the hills at last. Sometime I will watch you Slyly overhead, When you think I'm sleeping Snugly in my bed.

Matthias Barr

#### BABY SLEEPS

THE baby wept; The mother took it from the nurse's

And hushed its fears, and soothed its vain alarms,

And baby slept.

Again it weeps,

And God doth take it from the mother's arms,

From present griefs, and future unknown harms,

And baby sleeps.

Samuel Hinds

#### LETTY'S GLOBE

Y/HEN Letty had scarce passed her third glad year,

And her young artless words began to

One day we gave the child a coloured sphere

Of the wide earth, that she might mark and know,

By tint and outline, all its sea and land. She patted all the world; old empires peeped

Between her baby fingers; her soft hand Was welcome at all frontiers. How she

And laughed and prattled in her worldwide bliss:

But when we turned her sweet unlearned

On our own isle she raised a joyous cry: Oh! yes, I see it, Letty's home is there! And, while she hid all England with a kiss, Bright over Europe fell her golden hair.

Charles Tennyson Turner

#### THE SHEPHERD

How sweet is the shepherd's sweet lot. From the morn to the evening he

He shall follow his sheep all the day, And his tongue shall be filled with praise.

For he hears the lamb's innocent call, And he hears the ewe's tender reply; He is watchful while they are at peace, For they know when their shepherd is William Blake

#### THE FROST LOOKED FORTH

THE Frost looked forth one still, clear night,

And whispered: "Now I shall be out of sight,

So through the valley and over the height In silence I'll take my way;

I'll not go on like that blustering train, The wind and the snow, the hail and the rain;

They make so much bustle and noise in

But I'll be as busy as they."

Then he flew to the mountain and powdered its crest;

He lit on the trees, and their boughs he dressed

In diamond beads, and over the breast Of the quivering lake he spread A coat of mail, that it need not fear The downward point of many a spear That hung on its margin far and near, Where a rock could rear its head.

He went to the windows of those who slept. And over each pane like a fairy crept; Wherever he breathed, wherever he stept, By the light of the moon were seen Most beautiful things: there were flowers

and trees, There were bevies of birds and swarms of bees,

There were cities with temples and towers, and these

All pictured in silver sheen.

But he did one thing that was hardly fair, He peeped in the cupboard, and finding

That all had forgotten for him to prepare, "Now, just to set them a-thinking,

I'll bite this basket of fruit," said he; "This costly pitcher I'll burst in three, And the glass of water they've left for me

Shall tchich to tell them I'm drinking." Hannah Flagg Gould

THE REAL HISTORY OF THE APPLE-PIE

A APPLE-PIE, B bit it,
C cut it, D dealt it,
E ate it, F fought for it,
G got it, H had it,
I iced it, J joked about it,
K kept it, L longed for it,
M mourned for it,
N nodded at it,
O opened it, P peeped in it,
O quartered it, R ran for it,
S stole it, T took it,
U upset it, V viewed it,
W wanted it, X expected it,
Y yearned for it, Z had a zest for it;
And when they came to ampersand
They all desired a piece in hand.

At last they every one agreed Upon the apple-pie to feed; But as there seemed to be so many Those who were last might not have any Unless some method could be thought out To stop their squabbles being fought out. They all agreed to stand in order Around the apple-pie's fine border, Take turn as they in school-book stand, From great A down to ampersand, In equal parts the pie dividing, A fair plan they were all deciding,

Says A, give me a good large slice, Says B, a little bit, but nice, Says C, cut me a piece of crust, Take it, says D, it's dry as dust, Says E, I'll eat it fast, I will, Says F, I vow I'll have my fill, Says G, give it me good and great, Says H, a little bit I hate, Says I, its ice I must request, Says J, the juice I love the best, Says K, let's keep it up above, Says L, the border's what I love, Says M, it makes your teeth to chatter, N said, it's nice, there's nought the matter, O others' plates with grief surveyed, P for a large piece begged and prayed, O quarrelled for the topmost slice, R rubbed his hands and said "it's nice," S silent sat, and simply looked, T thought, and said, it's nicely cooked, U understood the fruit was cherry, V vanished when they all got merry, W wished there'd been a quince in, X here explained he'd need convincing, Y said, I'll eat, and yield to none, Z, like a zany, said he'd done, While ampersand purloined the dish, And for another pie did wish.

PEMMY WAS A PRETTY GIRL

PEMMY was a pretty girl,
But Fanny was a better;
Pemmy looked like any churl
When little Fanny let her.

Pemmy had a pretty nose, But Fanny had a better; Pemmy oft would come to blows, But Fanny would not let her.

Pemmy had a pretty doll, But Fanny had a better; Pemmy chattered like a poll When little Fanny let her.

Pemmy had a pretty song, But Fanny had a better; Pemmy would sing all day long, But Fanny would not let her.

Pemmy loved a pretty lad, And Fanny loved a better; And Pemmy wanted for to wed, But Fanny would not let her.

THERE'S NOTHING LIKE A DADDY

I Do not want a puppy-dog, although I know they're nice,

For my papa can romp with me in ways that quite suffice.

He'll bark just like a St. Bernard, and like a mastiff growl,

And you would feel like laughing when he imitates its howl.

I do not want a pussy-cat. I like cats pretty well,

But Daddy beats them all, and plays better than I can tell.

He'll purr and siss like anything; his mewing you should hear;

It makes more noise than any cat, and, oh, I shake with fear!

I do not want a pony small. Of course they're lots of fun,

But what's the use of ponies when you're my dear daddy's son?

He takes me on his shoulders broad, or puts me on his knees,

And sets me off a-galloping as madly as you please.

In short, I don't want anything as long as Daddy's here;

He's pretty much of everything, and don't get out of gear.

And best of all the things boys have, I'm sure you'll find it true,

There's nothing like a daddy who will always play with you!

#### MR. NOBODY

I Know a funny little man,
As quiet as a mouse,
Who does the mischief that is done
In everybody's house.

There's no one ever sees his face, And yet we all agree

That every plate we break was cracked By Mr. Nobody.

'Tis he who always tears our books, Who leaves the door ajar;

He pulls the buttons from our shirts, And scatters pins afar.

That squeaking door will always squeak,
For, prithee, don't you see,
We leave the oiling to be done

By Mr. Nobody.

He puts damp wood upon the fire,
That kettles cannot boil;
His are the feet that bring in mud
And all the carpets soil.
The papers always are mislaid:
Who had them last but he?
There's no one tosses them about
But Mr. Nobody.

The finger-marks upon the door
By none of us are made;
We never leave the blinds unclosed
To let the curtains fade.
The ink we never spill, the boots
That lying round you see
Are not our boots; they all belong
To Mr. Nobody.

#### THE WASP AND THE BEE

A WASP met a bee that was buzzing by, And he said: "Little cousin, can you tell me why

You are loved so much better by people than I?

"My back shines as bright and yellow as gold,

And my shape is most elegant, too, to behold;

Yet nobody likes me for that, I am told."

"Ah, cousin," the bee said, "'tis all very

But if I had half as much mischief to do, Indeed they would love me no better than you.

"You have a fine shape and a delicate wing;

They own you are handsome; but then there's one thing

They cannot put up with, and that is your sting.

"My coat is quite homely and plain, as you see,

Yet nobody ever is angry with me, Because I'm a humble and innocent bee."

From this little story let people beware, Because, like the wasp, if ill-natured they are

They will never be loved if they're ever so fair.

#### THE KILKENNY CATS

THERE were once two cats of Kilkenny,
Each thought there was one cat too
many;
So they fought and they fit,
And they scratched and they bit,
Till, excepting their nails
And the tips of their tails,
Instead of two cats there weren't any.

#### THE LITTLE MOUSE

I HAVE seen you, little mouse,
Running all about the house,
Through the hole your little eye
In the wainscot peeping sly,
Hoping soon some crumbs to steal,
To make quite a hearty meal.
Look before you venture out,
See if pussy is about;
If she's gone you'll quickly run
To the larder for some fun;
Round about the dishes creep,
Taking into each a peep,
To choose the daintiest that's there,
Spoiling things you do not care.

#### WHAT CAN THE MATTER BE?

O DEAR, what can the matter be?
O dear, what can the matter be?
O dear, what can the matter be?
Johnnie's so long at the fair.

He promised to buy me a bunch of blue ribbon,

He promised to buy me a bunch of blue ribbon,

He promised to buy me a bunch of blue ribbon,

To tie up my bonnie brown hair.

He promised to bring me a basket of posies,

A garland of lilies, a garland of roses,
A little straw hat to set off the blue

That the up my bonnie brown hair.

## THE OLD WOMAN AND HER PIG

An old woman was sweeping her house, and she found a crooked sixpence.

"What," she said, "shall I do with this little sixpence? I

shall go to market and buy a little pig."

As she was coming home she came to a stile. The piggy would not go over the stile. She went a

little farther, and she met a dog, so she said to the dog:

Dog, dog, bite pig;

Piggy won't get over the stile, And I shan't get home tonight!

But the dog would not.

She went a little farther, and she met a stick. So she said:

Stick, stick, beat dog;
Dog won't bite pig;

Piggy won't get over the stile,



And I shan't get home tonight! But the stick would not

She went a little farther, and she met a fire. So she said: Fire, fire, burn

Stick won't beat dog; Dog won't bite pig;

Piggy won't get over the stile, And I shan't get home tonight! But the fire would not.

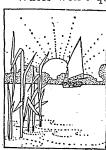
She went a little farther, and she met some water. So she said:

Water, water, quench fire; Fire won't burn stick; Stick won't beat dog; Dog won't bite pig;

Piggy won't get over the stile, And I shan't get home tonight! But the water would not.

She went a little farther, and she met an ox. So she said:

Ox, ox, drink water; Water won't quench fire;



Fire won't burn stick;

Stick won't beat dog;

Dog won't bite pig; Piggy won't get over the stile,

And I shan't get home tonight!
But the ox would not.

She went a little farther, and she met a butcher. So she said:

Butcher, butcher, kill ox; Ox won't drink water;

Water won't quench fire; Fire won't burn stick; Stick won't beat dog;

Dog won't bite pig;

Piggy won't get over the stile, And I shan't get home tonight!

But the butcher would not.

She went a little farther, and met a rope. So she said:

Rope, rope, hang butcher;

Butcher won't kill ox:

Ox won't drink

water;
Water won't quench fire;
Fire won't burn stick;

Water won't quench fire Fire won't burn stick; Stick won't beat dog; Dog won't bite pig; Piggy won't get over th

Piggy won't get over the stile, And I shan't get home tonight!

But the rope would not.

She went a little farther, and she met a rat. So she said:

Rat, rat, gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I shan't get home tonight!

But the rat would not.

She went a little farther, and

she met a cat, so she said:
Cat, cat, kill rat;
Rat won't gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over
the stile,
And I shan't get home

And I shan't get home tonight!

But the cat said to her, "If you will go to yonder cow, and fetch me a saucer of milk, I will



kill the rat." So away went the old woman to the cow, and said:

Cow, cow, give me a saucer of milk;

Cat won't kill rat;
Rat won't gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I shan't get home tonight!

But the cow said to her, "If you will go to yonder haymakers, and fetch me a wisp of hay, I'll give you the milk." So away went the old woman to the haymakers, and said:

Haymakers, give me a wisp of hay; Cow won't give milk; Cat won't kill rat;



Rat won't gnaw rope; Rope won't hang butcher; Butcher won't kill ox; Ox won't drink water; Water won't quench fire; Fire won't burn stick; Stick won't beat dog;

Dog won't bite pig; Piggy won't get over the stile, And I shan't get home tonight! But the haymakers said to her, "If you will go to yonder stream, and fetch us a bucket of water, we'll give you the hay." So away the old woman went.

But when she got to the stream she found the bucket was full of holes. So she covered the bottom with

pebbles and then filled the bucket with water, and she went back with it to the haymakers, and they gave her a wisp of hay. As soon as the cow had eaten the hay she gave the old woman the milk; and away she went with it in a saucer to the cat. As soon as the cat had lapped up the milk;

The cat began to kill the rat; The rat began to gnaw the rope; The rope began to hang the butcher; The butcher began to kill the ox;

> dri to bui

The ox began to drink the water;
The water began

to quench the fire;
The fire began to burn the stick;

The stick began to beat the dog;
The dog began to

The little pig in a fright jumped over

the stile;
So the old woman got home that night!

#### THE OLD MAN WHO LIVED IN A WOOD

There was an old man who lived in a wood, As you may plainly see; He said he could do as much work in a day

As his wife could do in three.
"With all my heart, the old woman said,

If that you will allow, Tomorrow you'll stay at home in my stead And I'll go and drive the plough.

"But you must milk the Tidy cow,
For fear that she go dry;
And you must feed the little pigs
That are within the sty;
And you must mind the speckled hen,
For fear she lay away;
And you must reel the spool of yarn
That I spun yesterday."

The old woman took a staff in her hand And went to drive the plough; The old man took his plough in his hand, And went to milk the cow; But Tidy hinched and Tidy flinched, And Tidy broke his nose, And Tidy gave him such a blow That the tears ran down to his toes.

"High, Tidy, ho! High, Tidy, high! Tidy, do stand still!

If ever I milk you, Tidy, again 'Twill be sore against my will.'

He went to feed the little pigs
That were within the sty;
He hit his head against the beam,
And he made the tears to fly.
He went to mind the speckled hen,
For fear she'd lay astray,
And he forgot the spool of yarn
His wife spun yesterday.

So he swore by the sun and the moon and the stars,

And the green leaves on the tree, If his wife didn't do a day's work in her life She should ne'er be ruled by he.

#### NURSERY RHYMES

Doodle, doodle, doo,
The princess lost her shoe;
Her highness hopped,
The fiddler stopped,
Not knowing what to do.

ĺ

A FARMER'S dog leaped over the stile, His name was little Bingo; There was B with an I, I with an N, N with a G, G with an O, There was B, I, N, G, O, And his name was little Bingo.

THERE was an old man in a tree
Who was horribly bored by a bee;
When they said, "Does it buzz?"
He replied, "Yes, it does!
It's a regular brute of a bee!"

LITTLE Polly Flinders
Sat among the cinders,
Warming her pretty little toes;
Her mother came and caught her,
And whipped her little daughter
For spoiling her nice new clothes.

[

SEE-SAW, Margery Daw,
Baby shall have a new master;
She shall have but a penny a day
Because she can't work any faster.

SHALL I sing? says the Lark,
Shall I bloom? says the Flower;
Shall I come? says the Sun,
Or shall I? says the Shower.

Sing your song, pretty Bird, Roses bloom for an hour; Shine on, dearest Sun; Go away, naughty Shower.

COCK ROBIN got up early,
At the break of day,
And went to Jenny's window
To sing a roundelay.

He sang Cock Robin's love
To little Jenny Wren,
And when he got unto the end
Then he began again.

The rose is red, the violet's blue,
The pink is sweet, and so are you!

Young lambs to sell!
Young lambs to sell!
If I'd as much money as I could tell
I never would cry Young lambs to sell!

Curly Locks! Curly Locks! wilt thou be mine?

Thou shalt not wash dishes, nor yet feed the swine;

But sit on a cushion, and sew a fine seam, And feed upon strawberries, sugar, and

) [

There was an old woman who lived in a shoe;

She had so many children she didn't know what to do;

She gave them some broth without any bread,

She whipped them all round, and sent them to bed.

FIRST the farmer sows his seeds,
Then he stands and takes his ease;
Stamps his foot and claps his hands,
And turns him round to view his lands.

. .

Peter Piper picked a peck of pickled pepper;

A peck of pickled pepper Peter Piper picked;

If Peter Piper picked a peck of pickled pepper

Where's the peck of pickled pepper Peter Piper picked?

⊡

A LITTLE old man and I fell out;
How shall we bring this matter about?
Bring it about as well as you can;
Get you gone, you little old man.

] [

What are little boys made of, made of?
What are little boys made of?
Snaps and snails and puppy-dogs' tails;
And that's what little boys are made of,
made of.

What are little girls made of, made of?
What are little girls made of?
Sugar and spice, and all that's nice;
And that's what little girls are made of,
made of.

□ [

Lavender blue and rosemary green, When I am king you shall be queen. Call up my maids at four of the clock, Some to the wheel and some to the rock, Some to make hay and some to thresh corn, And you and I will keep the bed warm.

THERE was a king met a king In a narrow lane. Says this king to that king: Where have you been?

'Oh, I've been a-hunting With my dog and my doe.' 'Pray lend him to me,

That I may do so.'

There's the dog, take the dog. 'What's the dog's name?

'I've told you already. 'Pray tell me again.'

Pussy sits beside the fire: How can she be fair? In comes the little dog: "Pussy, are you there? So, so, Mistress Pussy, Pray, how do you do?". "Thank you, thank you, little dog, I'm verv well just now.'

HERE was a man, and he went mad, And he jumped into a biscuit bag; The biscuit bag it was so full, So he jumped into a roaring bull; The roaring bull it was so fat, So he jumped into a gentleman's hat; The gentleman's hat it was so fine, So he jumped into a bottle of wine; The bottle of wine it was so dear, So he jumped into a barrel of beer; The barrel of beer it was so thick, So he jumped into a walking-stick; The walking-stick it was so narrow, So he jumped into a wheelbarrow; The wheelbarrow began to crack, So he jumped into a haystack; The haystack began to blaze, So he did nothing but cough and sneeze!

TOHN COOK he had a little grey mare; he, haw, hum!

Her back stood up, and her bones they were bare; he, haw, hum!

John Cook was riding up Shunter's Bank; he, haw, hum!

And there his nag did kick and prank; he, haw, hum!

John Cook was riding up Shunter's Hill; he, haw, hum!

His mare fell down and she made her will; he, haw, hum!

The bridle and saddle were laid on the shelf; he, haw, hum!

If you want any more you may sing it yourself; he, haw, hum!

BUTTERFLY perched on a mossy brown stile,

And a little maid saw him and cried, with a smile:

"O beautiful butterfly, yellow and blue, Stop, stop; let me sit on the stile with

But the beautiful butterfly, yellow and blue.

Opened his wings, and away he flew; And when he'll return I really can't say, But the little maid sits on the stile to this day!

KNOW a child, and who she is

I'll tell you by and by... When Mamma says Do this, or that, She says What for? and Why? She'd be a better child by far If she would say I'll try.

LD Abram Brown is dead and gone, You'll never see him more; He used to wear a long brown coat That buttoned down before.

As I was going to sell my eggs I met a man with crooked legs; Crooked legs and turned-up toes. I tripped up his heels, and he fell on his nose.

LITTLE cock sparrow sat on a green

And he chirruped, he chirruped, so merry was he.

A naughty boy came with his wee bow and arrow,

Determined to shoot this little cock sparrow.

"This little cock sparrow shall make me a

And his giblets shall make me a little pie too.'

Oh, no," said the sparrow, "I won't make a stew!

So he flapped his wings, and away he flew.

LECTOR PROTECTOR was dressed all in

Hector Protector was sent to the Queen; The Queen did not like him,

No more did the King;

So Hector Protector was sent back again.

# The Story of the Most Beautiful Book in the World Carrying on the Great Ideal

W<sup>E</sup> have read together the wonderful narrative of the Bible, the life of Jesus, the great story of Paul. We have seen how the ideas of Jesus, carried to Antioch and Rome by his servant Paul, opposed by all that hate, cruelty, and evil could do to destroy them, endured through the decay of the Roman Empire, and became the chief influence in the progress of the new world when Rome had become but the shadow of a name. For us it remains to carry on the work that began in Galilee, that Paul brought to Europe, and that men have built up through ages of suffering and toil. It is for us to carry forward the influence of Jesus by the gentleness of our lives, to spread goodness and hopefulness everywhere, to keep for ever shining in our lives, undimmed and unbroken, the beautiful Light of the World.

## CHRISTIANITY IN THE WORLD

X/E have traced what happened to Christianity after the disciples went forth into many parts of the world to proclaim the good news; how two chief churches were formed in Rome and in Constantinople; how the Church of Rome grew to be a most powerful institution under the Pope, and a rival to the government of nations by their kings. Gradually the Church undertook to fix what all Christians should believe, and what ought not to be believed in religion; and this was followed by punishments, including death, for Christians who doubted whether some of the Church's teachings were the pure teachings of Christ.

The differences of opinion and belief as to what Christianity is, and the use of force to secure uniformity, make up one of the saddest chapters to be recorded in human history.

We cannot conceive of Jesus doing what was done by the Churches adopting his name. He was no persecutor; he was content to be persecuted. In all the Christian Churches of all ages there have been men truly reflecting Christ's spirit, and they, by whatever name they may be called, are his true Church; but also in all the churches, in churches of almost every creed, there have been men with a persecuting spirit, and unfortunately they have often been the leading spirits, harsh and implacable.

The truth is they simply did not understand the mind of Christ. So, within His Church (within the Protestant churches as in others) came wars and bloodshed, massacres and burnings alive—a terrible retrospect! All this came about because men were not allowed the liberty to be honest in their inmost beliefs.

We shall be unjust in looking back on these things if we think it was only one part of the Church that was cruel. Cruelty was common. Gentleness was at a discount among men who had power. Religion was infected by it, even the religion called by the name of the Lord of Love. Only gradually has the mind that was in Jesus dominated His Church, as only gradually is it dominating the world.

The difficulty began when the Church attempted by force to crush out such forms of Christianity as did not quite agree with the forms it had said were the only right forms. It is impossible to conquer thought and belief by force. Persecution only made men who were seeking the truth the more resolute. They died gladly for the faith that was dear to them, as the earlier Christians had died rather than submit to the official religion of pagan Rome.

As time went on men of a thoughtful and independent tone of mind claimed to go back to the teachings of Scripture to find out what Christianity was as it was taught by Christ and the Apostles.

GREAT FIGURES OF THE OLD TESTAMENT THE LIFE OF JESUS

The man who began to preach a greater freedom of inquiry was a learned English priest named John Wycliffe, who lived most of his life while Edward the Third was King of England. He has been called the Morning Star of the Reformation. It grieved him to see that so many of the clergy seemed to care little for the souls of the people, so he sent out his disciples to preach the Gospel for the truth's sake, without earthly reward.

# How wycliffe's followers were persecuted in england

He also translated the Scriptures so that the people could read them—the Bible in England having been printed only in Latin for the learned to read. His teaching made the rulers of the Church angry, though it was pleasing enough to some of the great lords, such as John of Gaunt; and therefore they protected Wycliffe from the bishops, who would have had him punished as a heretic. And so John Wycliffe himself died in peace.

But after his death his disciples in England, who were called Lollards—from a word which means to chant or sing—were persecuted as heretics, and Wycliffe's doctrines were declared to be heresies; and a fearful thing was done, his body being taken from the grave and burned, and the ashes cast into the river. Yet his doctrines had reached to other lands, and there arose in Bohemia a teacher named John Huss, who taught the things that Wycliffe taught; and many of the people of Bohemia believed these things and held them for truth.

## FIERCE WARS THAT WERE CAUSED BY AN EMPEROR'S BROKEN PROMISE

In those days there was held a great Council at Constance, in Switzerland, to put an end to the quarrels that were going on as to which of two men who claimed to be pope was really pope, and Huss was bidden to come before this Council to answer for his doctrines. He would not have gone except that the Emperor Sigismund gave him a written promise that he should be suffered to come and to depart unhurt. But the emperor, to his great shame, broke his word, and Huss was condemned to be burned. The folk of Bohemia were very angry at these things, and would in no wise deny the truth of what Huss had taught them; and there followed long and fierce wars, in which the Hussites were often victorious,

Among the men who sought to spread knowledge and gain greater freedom for

honest thought, but yet drew back when they feared that great and violent change might come, the most famous and the cleverest was Erasmus, the Dutchman who greatly loved Sir Thomas More, and was beloved by him.

The learned Erasmus was born in 1466 at Rotterdam, in Holland. It was meant that he should be a monk, and he was brought up among monks. Yet though he became a priest, a monk he would not be, but spent his time in studying and lecturing and talking and writing. His witty words threw scorn and contempt upon corruption and superstition and all manner of folly, and his wise words taught men to understand the writings of Paul and the evangelists, and to insist on the right interpretation of them.

At last a time was reached when many men felt that a firm stand must be made at any cost against religion being imposed on them by authority. The greatest of these was Martin Luther, whose name is most closely associated with the widespread, epoch-making movement known in history as the Reformation.

# THE MINER'S SON WHO LED THE REFORMATION IN GERMANY

Luther was very humbly born, for his father was no more than a poor miner; yet, being a frugal man with a wise wife, and both of them God-fearing folk, they prospered enough to be able to send their son to school, which poor folk could not always do in those days. The boy, being clever, did so well in his studies that he hoped to become a lawyer; but his thoughts were turned more zealously to religion, as the story goes, by the sudden death of his dearest friend, who was struck by lightning.

Therefore he resolved to become a monk, thinking that it was only in the quiet of the cloister that a man could lead a truly spiritual and holy life. Then, as he was a very earnest student, he was chosen to be one of the teachers at the new university of Wittenberg, in Saxony; and there it was not long before men began to flock to his lectures and his sermons, as he said strange things that went home to people's hearts, for he loved truth and spoke it fearlessly.

But as yet he had not thought at all that any man would ever call him heretic; for there was nothing that he taught or believed which he had not found either in

#### CHRISTIANITY IN THE WORLD

the words of Paul or of the great Bishop St. Augustine, after whom the order of monks to which Martin Luther belonged was named.

It was a sore grief to him when he found that the interpretation which he gave to the Bible was not that of the Church, and a greater grief still when he felt compelled to denounce the practice of offering forgiveness for sins for money, as was sometimes done.

In the end the authorities of the Church found it necessary to oppose Luther with all their power, and the Pope sent a bull, which means a paper with a seal fixed to it, declaring that Luther was a heretic (an unbeliever), and Luther burned the Pope's

bull before the citizens of Wittenberg, who, for the most part, were on his side. This act was as much as to say that he denied the Pope's authority altogether.

Just at this time what was called a Diet, an assembly of the princes and nobles of the German Empire, was held at Worms, and Luther was bidden to appear before it and answer for himself. Thither he went, though none knew whether his

fate might not be that of John Huss at the Council of Constance; many men urged him not to risk his life, seeing that Duke George of Saxony was bitter

against him.

But Luther said: "I will go, though it rain Duke Georges," and he stood before the gathered princes and nobles and bishops, and showed a great courage, saying that the words charged against him were true, and while he held them to be true he would not withdraw them, but would himself be true to his conscience. "Here stand I," he said boldly, "God help me! I can do no other."

However, before the Diet passed its judgment against him, declaring him an outlaw, certain of his friends made a prisoner of him and carried him off secretly to a secure place where none could find him, and so his life was saved. From that time the princes of the German Empire were divided, some being for Luther and others for the Pope; and those who were for Luther would not yield him up.

It was while he was in hiding by the will of his friends that Luther began his translation of the Bible into the German tongue, as Wycliffe had translated it into English; but now that the printing press had been invented thousands of people had the chance of reading Luther's Bible where only one had had the chance of read-

ing Wycliffe's and Luther's followers in Germany multiplied.

It was because they wanted to *protest* against oppression that Luther's followers were first called Protestants. All the rest of his days, throughout the Protestant parts of Germany, no man was held in such honour as Martin Luther. Though should not find it possible to accept all his views today, he stood for much of what we now believe. By



READING FROM A CHAINED BIBLE

the great influence he had he used to keep the peace between his own followers and the zealous Romanists, though after he died they could no longer be restrained from going to war with each other.

Now, although it is certain that there was none other who wrought so mighty a work as Luther, there were others who set out on the same path. One of these was the Swiss Ulrich Zwingli, of Zurich, who, before Martin had begun, was already teaching much that Luther was to preach very soon.

But in some matters he departed from the Roman doctrine even more than Luther, so that Luther himself would not admit him to his friendship. However, the men who spread the reformed doctrine in England and Scotland were disciples of Zwingli rather than of Luther. He died as a soldier in defence of Zurich.

Soon afterwards there arose another champion of the Reformation, John Calvin, Frenchman, who lived for the most part at Geneva. The teaching of Calvin was very stern, and he ruled with a harsh discipline over the manner of life of his followers, and set up a new form of rule for the Church, not by bishops, but by presbyters, so that the name given to it is Presbyterianism. He, too, differed very much from Luther, and outside of England the Protestants may generally be divided into Calvinists and Lutherans.

In England the Reformation took a different way, for its leaders held that in rejecting the Pope's authority they were in no wise ceasing to be a branch of the Catholic Church, but were a branch of the Church which had freed itself from errors. They suffered men to hold different opinions about many doctrines, so that some might incline towards Luther and others towards Calvin if, in their manner of worship, they gave heed to the ordinances of the Church as declared by the law.

# THE COURSE OF THE REFORMATION IN ENGLAND AND SCOTLAND

The man who did most in making changes, and in checking them from extremes, was Thomas Cranmer, the Archbishop of Canterbury, who died at the stake in the terrible reign of Queen Mary.

In Scotland the Reformation was given its shape for the most part by a great disciple of Calvin, John Knox. He was a priest in the Roman Church when he was taught Luther's ideas by George Wishart, who became a Protestant martyr. By reason of his zeal and his powerful preaching the Protestant Scots, who had rebelled and were besieged at St. Andrews, took John Knox for their pastor. And so it was that when the French came to help Mary they took St. Andrews, and John Knox was carried off as a prisoner, being then 24 years old.

By the French Knox was sent to the galleys for a time and afterwards removed to prison. But when he was set free he returned to Scotland, and from that time to the day of his death all the reformers looked to him as their guide. He was a stern man, hating all things that had to do with vanity, and when the young Queen Mary came back to Scotland from

France he had no fear of reproving her and all her courtiers, as Elijah reproved King Ahab, speaking words bold and bitter because she was much given to gaiety and because she was a Romanist.

Knox taught a stern religion, and made the Scots, who were ever a rough and hardy people, a sterner folk than before; but he wrought a great work among them by the care he took for the teaching of children all over the land. He died full of years and honours, and, though for his hardness men scarcely love his memory, they still hold it in reverence.

# THE LONG STRUGGLE IN ENGLAND FOR RELIGIOUS FREEDOM

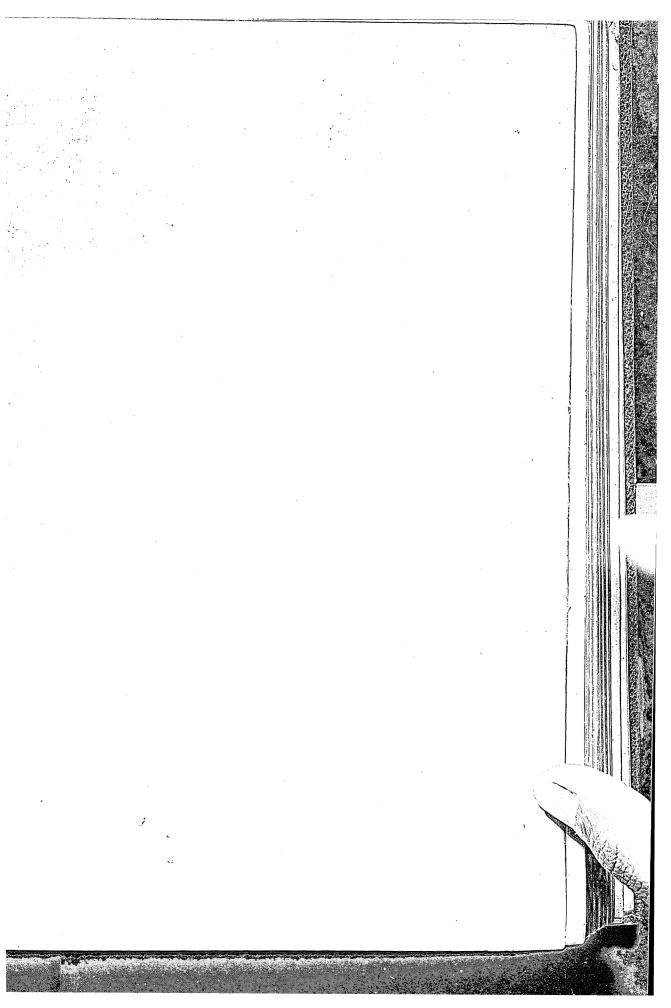
Since that time our Little Treasure Island has been on the whole a Protestant country. Only gradually, however, did it allow full freedom to those who held the Roman Catholic faith, for early Protestantism was tainted by the idea of repressing beliefs contrary to its own. It was not until nearly our own time, indeed, that full liberty of religion has been established throughout the land, and perhaps even now it cannot be said that the victory is completely won.

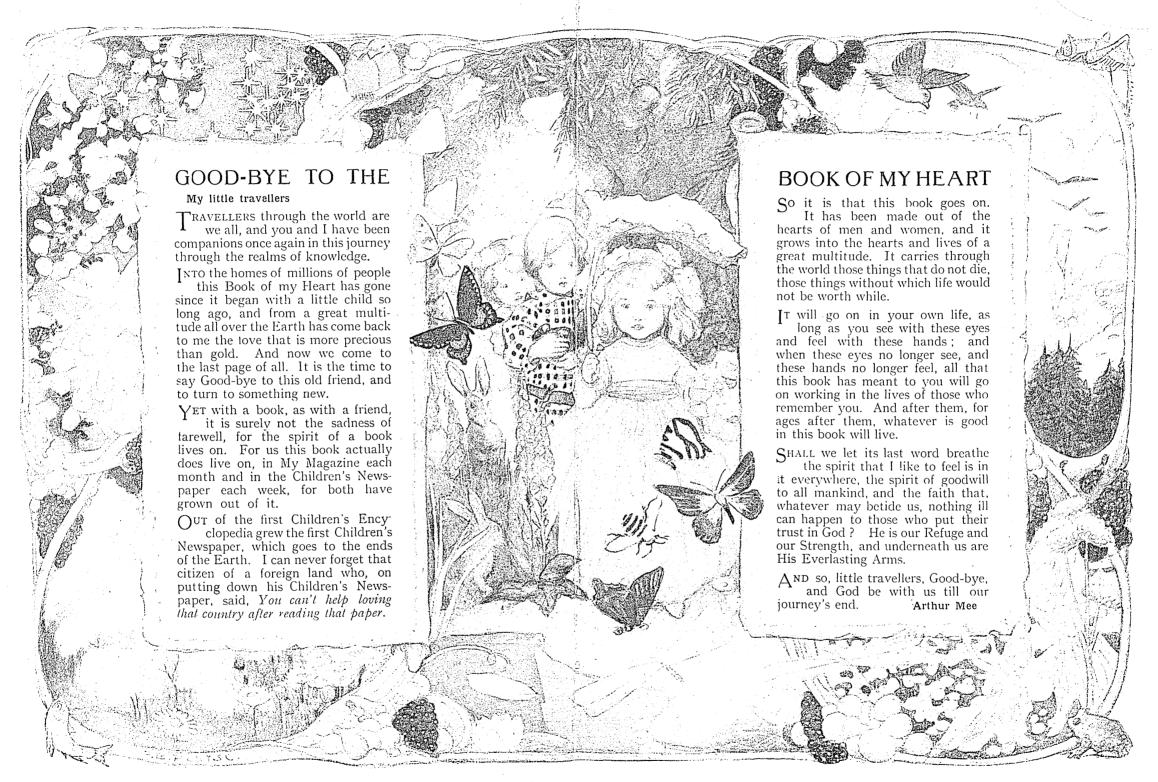
Growing freedom in religion has been followed by a growth of various forms of worship and differences in belief, though now there is a tendency towards greater unity. It is felt increasingly that in what is most essential, as judged by the teachings and life of Jesus, Christians are of one Church inwardly, though they may call themselves by different names.

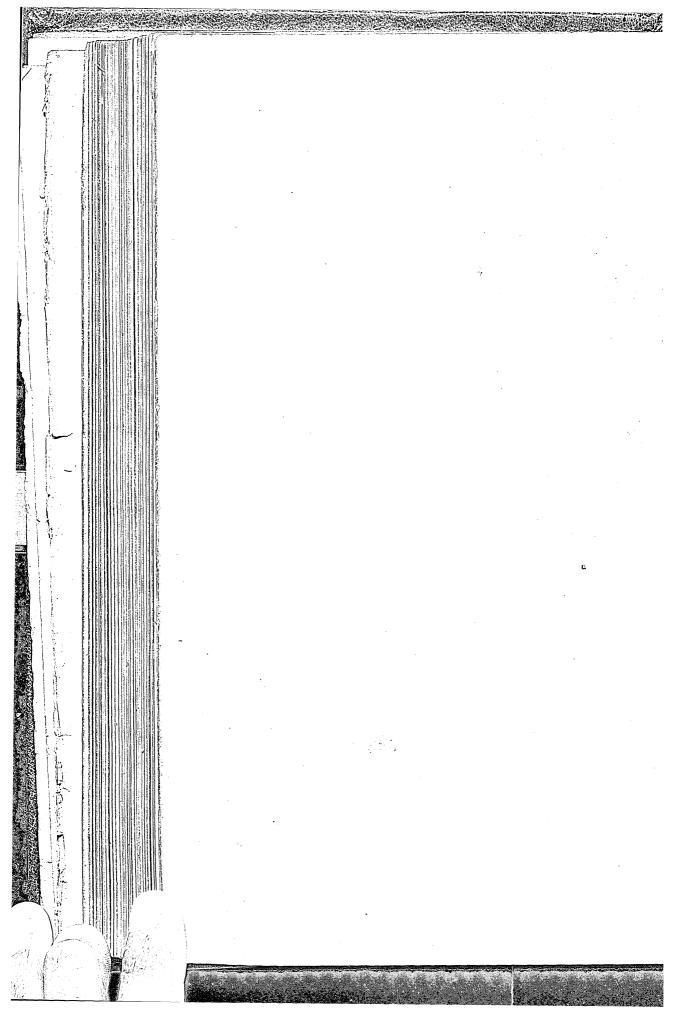
In one respect all branches of the Church of Christ have followed the example of the earliest Christians, and have sought to spread the faith throughout all lands. That was a form of service the Roman Catholic Church never lost sight of, and its missionary record has many noble pages.

# HAS QUIETLY MADE ITS WAY

Christianity, in its many forms, is by far the most widely diffused of all religions. Other faiths are found widely held in large territories, as with Mohammedanism, Brahminism, Buddhism, and the religions of China; but Christianity is spreading everywhere. There is no land where its voice is not heard. And, best of all, its spirit is quietly permeating lands and influencing lives even where its teachings are not accepted as a religion; and many who do not openly enlist under the banner of Christ are in deed faithful unawares.







# A LITTLE GUIDE TO KNOWLEDGE

An Alphabetical Encyclopedia of a Hundred Thousand Facts

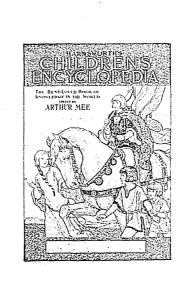
With Many Valuable
Tables of Information

and with a

FULL INDEX TO THE CONTENTS OF THE CHILDREN'S ENCYCLOPEDIA

so forming a quick guide to

THOUSANDS OF SHORT BIOGRAPHIES
THOUSANDS OF GEOGRAPHICAL FACTS
A THOUSAND POEMS AND RHYMES
STORIES OF ALL AGES AND RACES
ABOUT TWENTY THOUSAND PICTURES



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# THE ENCYCLOPEDIA INDEX

## and Ready Guide to Knowledge

It is hoped that these last few hundred pages of the Children's Encyclopedia will be, if not as interesting, at least as useful as any of the seven thousand pages preceding them. They are a guide to the whole Encyclopedia, but they are much more than that, for they comprise within themselves a small encyclopedia for quick and ready reference. An immense volume of everyday information has been packed into these pages, embodied in its alphabetical place in the index of the Encyclopedia.

Whatever is wanted should be first looked for here in its proper alphabetical place. The vast collection of facts, biographies, histories, stories, pictures, poems, ideas, places, that are brought together in the Encyclopedia is here carefully indexed, so that individual items can be quickly found by looking up the key-word of the subject; but there is in these pages much more than an index of the pages that have gone before—there is a considerable volume of information such as is frequently wanted by ordinary people. It has been thought worth while to include all this information in an easily obtainable form.

The interest of an ordinary encyclopedia lies in its value as a work of reference; it is arranged so that a man who knows a thing, or a man who does not know it, can find it quickly, as he finds a word in the dictionary. The Children's Encyclopedia, however, differs from all other encyclopedias in this—that it is infinitely more than an encyclopedia of facts prepared for ready reference; it is an encyclopedia that educates. It is arranged with that end in view; it is a book to be widely read for its own sake, and not merely a book to be referred to.

It is felt, however, that in view of the world-wide circulation of the Children's Encyclopedia it is worth while to enhance its value by transforming its index into a small alphabetical encyclopedia, which shall be not only a guide to the contents of the book itself, but a book for ready reference on thousands of subjects on which information is constantly being called for.

I NCORPORATED in this index, therefore, is a remarkable mass of information which it is hoped will be of very great value. There are thousands of brief biographies and thousands of geo-

#### CHILDREN'S ENCYCLOPEDIA

graphical facts. There are descriptions of hundreds of scientific instruments. There is a list of discoveries and inventions which we believe could not be obtained from any other book in the world; it has required over two hundred other books to compile it. There are tables of railways, telegraphs, and waterways of the world. There are astronomical, geographical, and physiological tables of very great interest. There is a set of tables of weights and measures that is probably unique. There are signs and symbols. There are tables of the strength and weight of materials. There is a list of the biggest steamships.

There are explanations of familiar abbreviations and translations of many foreign phrases. There are short descriptions of over a thousand countries, islands, rivers, mountains, oceans, lakes, and straits. There are facts about five hundred British towns, five hundred European towns, and five hundred towns on the other four continents. There are descriptions of the most important races of mankind. There is information concerning hundreds of the chief cathedrals of the world and references to thousands of historical and archaeological subjects. There is a table of all the elements with their chemical symbols and their atomic weights. There is a remarkable table of speeds, and an entirely original series of quick ways of converting such things as weights and measures.

There is a comprehensive index of the hundreds of questions asked and answered in the Wonder Section of the Encyclopedia, covering a range of interest and curiosity as wide as the mind of a child. All these questions will be found indexed under their vast variety of subjects.

There is a guide to a thousand poems, songs, and rhymes, arranged so that anyone knowing the author or title or first line can find what is wanted; and there is a subject guide to about five hundred stories, fables, and legends of all ages and from all parts of the world. The collection of stories here grouped in a subject index is one of the most valuable story-lists ever compiled for teachers and children, embracing examples of the mythologies of many lands. Some of the stories are given in French as well as in English, and some of the songs and rhymes are given with very simple music.

IT is believed that this Little Guide to Knowledge will be of immense value to all who wander in the realms of the wise.

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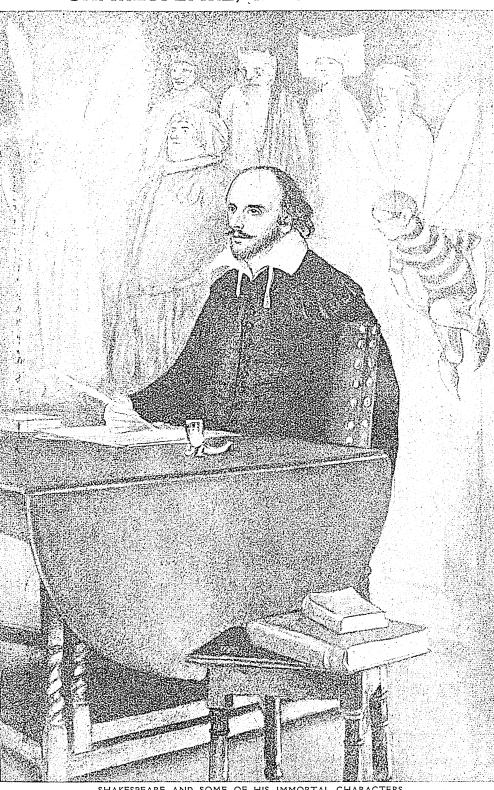
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# SHAKESPEARE, KING OF POETS



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The collection of poetry in the Children's Encyclopedia is made up of separate pieces, and they represent every kind of verse. There are sonnets, songs, odes, dramatic pieces, humorous verses, hymns, and psalms; nursery rhymes in English and French; folk-lore songs of Germany; songs set to music; nonsense verses; and selections from Shakespeare and many other poets whose works are too long to quote as a whole.

All the poems of an author are together under his name. They are *indented* under the name; that is to say, the titles begin a little way on in the line, not straight with the other lines. All poems with these indented lines are by the author whose name is above them.

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Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5913           English politician and author (b. 1858)         5048           Crisis, The         5543           Crocus, The         3565           Crocus, while the days are dark,         6769           Cromwell, our chief of men, who through a cloud         2960           Cross patch         1840           Crosses and troubles a-many have proved me         4683           Crossing the Bar         3338           Crouched on the pavement close by Belgrave Square         6405           Cry of the Children, The         475           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo Song         6703           Guddle Doon         3075	Buckle, The
Frost at Midnight 6284 Kubla Khan 6645 Quotations: He, prayeth best who loveth best (The Ancient Mariner) 2474 Horned moon, with one bright star, The (The Ancient Mariner) 5001 Moving Moon went up the sky, The (The Ancient Mariner) 2473 Weave a circle round him thrice (Kubla Khan) 3957 Coleridge, Sarah English author (1802–1852) Months, The 6002 Collins, William English poet (1721–1759) How Sleep the Brave 847 Come, all ye weary wanderers 3938 Come Buy! Come Buy! (with music) 5200 Come, cuddle close in Daddy's coat 5295 Come, dear children, let us away 351	Cradle Song, A	Buckle, The
Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5918           English politician and author (b. 1858)         5048           Seven Years         5048           Crisis, The         5543           Crocus, The         3565           Crocus, while the days are dark,         6769           Cromwell, our chief of men, who through a cloud         2960           Cross patch         1840           Crosses and troubles a-many have proved me         4683           Crossing the Bar.         3338           Crouched on the pavement close by Belgrave Square         6405           Cry of the Children, The         475           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo, Song         7039           Cuddle Doon         3075           Cunningham, Allan         Scottish poet (1784–1842)	Buckle, The
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Frost at Midnight 6284 Kubla Khan 6645 Quotations: He, prayeth best who loveth best (The Ancient Mariner) 2474 Horned moon, with one bright star, The (The Ancient Mariner) 5001 Moving Moon went up the sky, The (The Ancient Mariner) 2473 Weave a circle round him thrice (Kubla Khan) 3957 Coleridge, Sarah English author (1802–1852) Months, The 6902 Collins, William English poet (1721–1759) How Sleep the Brave 847 Come, all ye weary wanderers 3938 Come Buy! Come Buy! (with music) 5300 Come, cuddle close in Daddy's coat 5295 Come, dear children, let us away 351 Come hither, lads, and hearken 5292 Come Into the Garden, Maud 3325	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5918           English politician and author (b. 1858)         5048           Seven Years         5048           Crisis, The         3565           Crocus, The         6769           Crosus, while the days are dark,         6769           Cromwell, our chief of men, who         1840           Cross patch         1840           Crosses patch         333           Crossing the Bar         3338           Crouched on the pavement close         by Belgrave Square         6405           Cry of the Children, The         475           Cry of the Children, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo, Song         7039           Cuddle Doon         3075           Cunningham, Allan         Sectitish poet (1781-1842)	Buckle, The
Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5918           English politician and author (b. 1858)         5048           Seven Years         5048           Crisis, The         3565           Crocus, The         6769           Crosus, while the days are dark,         6769           Cromwell, our chief of men, who         1840           Cross patch         1840           Crosses patch         333           Crossing the Bar         3338           Crouched on the pavement close         by Belgrave Square         6405           Cry of the Children, The         475           Cry of the Children, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo, Song         7039           Cuddle Doon         3075           Cunningham, Allan         Sectitish poet (1781-1842)	Buckle, The
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Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         English politician and author (b. 1858)           Seven Years         5048           Crisis, The         5543           Crocus, The         3565           Crocus, while the days are dark,         6769           Cromwell, our chief of men, who through a cloud         2960           Crosses and troubles a-many have proved me         4683           Crossing the Bar         3338           Crouched on the pavement close by Belgrave Square         6405           Cry of the Children, The         4067           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo Song         7039           Cuddle Doon         3075           Cunningham, Allan         5643           Curfew Bell, The         6643           Curfew tolls the knell of parting day, The         6149           Curly Locks! Curly Locks! wilt	Buckle, The
Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5913           English politician and author (b. 1858)         5048           Seven Years         5048           Crisis, The         5543           Crocus, The         6769           Cromwell, our chief of men, who through a cloud         2960           Cross patch         1840           Crosses and troubles a-many have proved me         4683           Crossing the Bar         3338           Crouched on the pavement close by Belgrave Square         405           Cry of the Children, The         475           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo Song         7039           Cuddle Doon         3075           Cunningham, Allan         Sevetish poet (1784-1842)           At Sea         1597           Curfew Bell, The         6643           Curfew tolls the knell of parting day, The         6149           Curly Locks! Curly Locks! wilt thou be mine?         7047	Buckle, The
Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5918           English politician and author (b. 1858)         5048           Seven Years         5048           Crisis, The         3565           Crocus, The         6769           Crosus, while the days are dark,         6769           Cromwell, our chief of men, who         1840           Cross patch         1840           Crosses patch         333           Crossing the Bar         3338           Crosing the Bar         3338           Crouched on the pavement close         by Belgrave Square         6405           Cry of the Children, The         475           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo, Song         7039           Cuddle Doon         3075           Curiew Bell, The         6643           Curfew tolls the knell of parting day, The         6149           Curly Locks   Curly Locks   wilt thou be mine?         7047           Current that with gentle murmur         7047	Buckle, The
Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5918           English politician and author (b. 1858)         5048           Crisis, The         5543           Crocus, The         3565           Crocus, While the days are dark,         6769           Cromwell, our chief of men, who through a cloud         2960           Cross patch         1840           Crosses and troubles a-many have proved me         4683           Crossing the Bar         3338           Crouched on the pavement close by Belgrave Square         6405           Cry of the Children, The         475           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo Song         7039           Cuddle Doon         3075           Cunningham, Allan         5643           Curfew Bell, The         6643           Curfew Bell, The         6643           Curfew Ulls the knell of parting day, The         6149           Curly Locks   Curly Locks   wilt thou be mine?         7047           Current that with gentle murmur glides (Shakespeare quoted)         980	Buckle, The  Dennis, Richard Molesworth  English poet who fell in the War  Boy's Thanksgiving, A 6033  Deserted House, The 3325  Destruction of Sennacherib
Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5918           English politician and author (b. 1858)         5048           Seven Years         5048           Crisis, The         3565           Crocus, The         6769           Crosus, while the days are dark,         6769           Cromwell, our chief of men, who         1840           Cross patch         1840           Crosses patch         333           Crossing the Bar         3338           Crosing the Bar         3338           Crouched on the pavement close         by Belgrave Square         6405           Cry of the Children, The         475           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo, Song         7039           Cuddle Doon         3075           Curiew Bell, The         6643           Curfew tolls the knell of parting day, The         6149           Curly Locks   Curly Locks   wilt thou be mine?         7047           Current that with gentle murmur         7047	Buckle, The
Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         5918           English politician and author (b. 1858)         5048           Crisis, The         5543           Crocus, The         3565           Crocus, While the days are dark,         6769           Cromwell, our chief of men, who through a cloud         2960           Cross patch         1840           Crosses and troubles a-many have proved me         4683           Crossing the Bar         3338           Crouched on the pavement close by Belgrave Square         6405           Cry of the Children, The         475           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo Song         7039           Cuddle Doon         3075           Cunningham, Allan         5643           Curfew Bell, The         6643           Curfew Bell, The         6643           Curfew Ulls the knell of parting day, The         6149           Curly Locks   Curly Locks   wilt thou be mine?         7047           Current that with gentle murmur glides (Shakespeare quoted)         980	Buckle, The
Frost at Midnight	Cradle Song, A         851           Creep into thy narrow bed         5913           Crewe, Marquess of         English politician and author (b. 1858)           Seven Years         5048           Crisis, The         3565           Crocus, The         3565           Crocus, While the days are dark,         The           The         6769           Cromwell, our chief of men, who through a cloud         2960           Crosses and troubles a-many have proved me         4683           Crossing the Bar         3338           Crouched on the pavement close by Belgrave Square         6405           Cry of the Children, The         4067           Cry of the Dreamer, The         4067           Cuckoo, cuckoo, cherry tree         6779           Cuckoo Song         7039           Cuddle Doon         3075           Cunfingham, Allan         8cottish poet (1784-1842)           At Sea         1597           Curfew Bell, The         6643           Curfew tolls the knell of parting day, The         6149           Curly Locks I Curly Locks I wilt thou be mine?         7047           Current that with gentle murmur glides (Shakespeare quoted)         980           Cut your nails on Monday         6654	Buckle, The — 4570  Pennis, Richard Molesworth  English poet who felt in the War  Boy's Thanksglving, A

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One and One	Eftsoons they heard a most	· my greatness (Shakespeare
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Scottish poet (1585-1649) This Life, Which Seems so Fair 6035 Dryden, John English poet and dramatist (1631-1700)	Every evening, after tea	Song of Little-Oh-Dear, The 5172 Teeny-Weeny 2207 Wynken Blynken and Nod . 6768
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Scottish poet (1885-1649) This Life, Which Seems so Fair 6035 Dryden, John English poet and dramatist (1631-1700) Three Poets, The 1596 Quotations:	Every evening, after tea	Song of Little-Oh-Dear, The 5172 Teeny-Weeny
Scottish poet (1885-1649) This Life, Which Seems so Fair 6035 Dryden, John English poet and dramatist (1631-1700) Three Poets, The 1596 Quotations: His grandeur he derived from Heaven alone (on Cromwell) 1610	Every evening, after tea	Song of Little-Oh-Dear, The
Scottish poet (1885-1649) This Life, Which Seems so Fair 6035 Dryden, John English poet and dramatist (1631-1700) Three Poets, The 1596 Quotations: His grandeur he derived from Heaven alone (on Cromwell) 1610 What passion cannot music raise and quell 2 (Song in praise of	Every evening, after tea	Song of Little-Oh-Dear, The
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Saviour, again to Thy dear name	signiors (Othello) 6165 No, no, no, no! Come, let's	O Romeo, Romeo! Wherefore art thou Romeo? (Romeo and
Saxe, John Godfrey	away to prison (King Lear) 6170	Juliet) 6161
American poet (1816-1887)	O! but they say the tongues of	Our doubts are traitors (Mea-
Say, Heavenly Muse, shall not thy	O God! methinks it were a	sure for Measure) 6536 Play's the thing, The (Hamlet) 6163
sacred vein 1224 Say not, because he did no won-	happy life (Henry VI) 6531 O! that we now had here	Poet's eye in a fine frenzy rolling, The (A Midsummer Night's
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Say Not the Struggle Naught Availeth 477	Of then I see Queen Mab hath been with you (Romeo and	Ring the alarum-bell! Blow wind! Come, wrack (Mac-
Says Tweed to Till 5909	Juliet) 6534 Of comfort no man speak	
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Laughing Brook, The 3810 Schiller, Friedrich	Once more unto the breach, dear	for Measure) 0030
German poet and dramatist (1759–1805)	friends (Henry V) 6534 Our revels now are ended. These	Sleep doubtless and secure (King John)
Mother Earth has Room for All 6403 Scots, wha hae wi' Wallace bled 3700	our actors (The Tempest) 1108	There is a tide in the affairs of men (Julius Caesar) 6536
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Scottish poet and novelist (1771–1832) Breathes there the Man 7030	The (Merchant of Venice) 982 So work the honey bees (Henry V)	(Richard II) 1928 This is a stem (Henry V) 6290
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Jock of Hazeldean	This royal throne of kings, this	(Macbeth) 1107 To be a queen in bondage is
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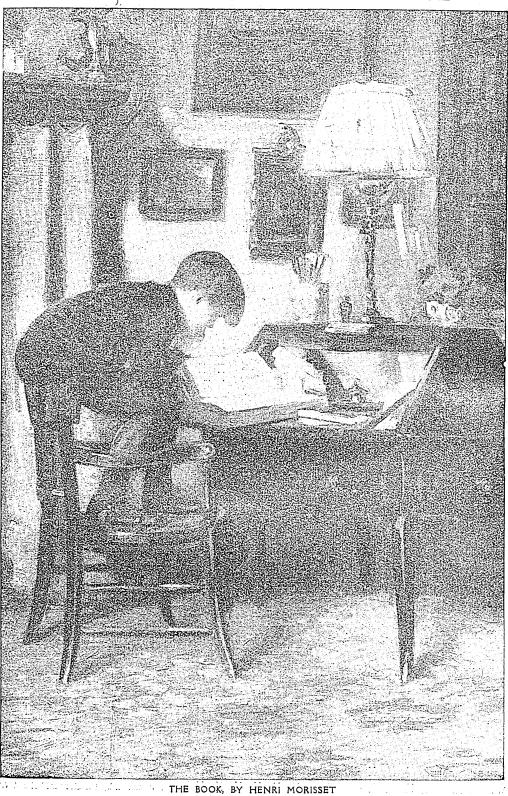
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# THE SEEKER AFTER KNOWLEDGE



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The order of the Index is strictly alphabetical, every phrase, or title of a book, or story, counting as one word. The key-word or phrase comes first in black type, the main article on the subject follows immediately, and then come references scattered throughout the work. All pages referring to reading matter are in black type. Pictures and maps come next with the page figures in light type, and at the end of the group is an indication where to look for extra information.

A phrase is indexed under its first word; Act of God is under Act.

Saints are under their names, but a town like St. John's is under St. John's. In indexing titles such words as The and A are omitted; The Comedy of Errors is under C. The words Common and Wild are also ignored.

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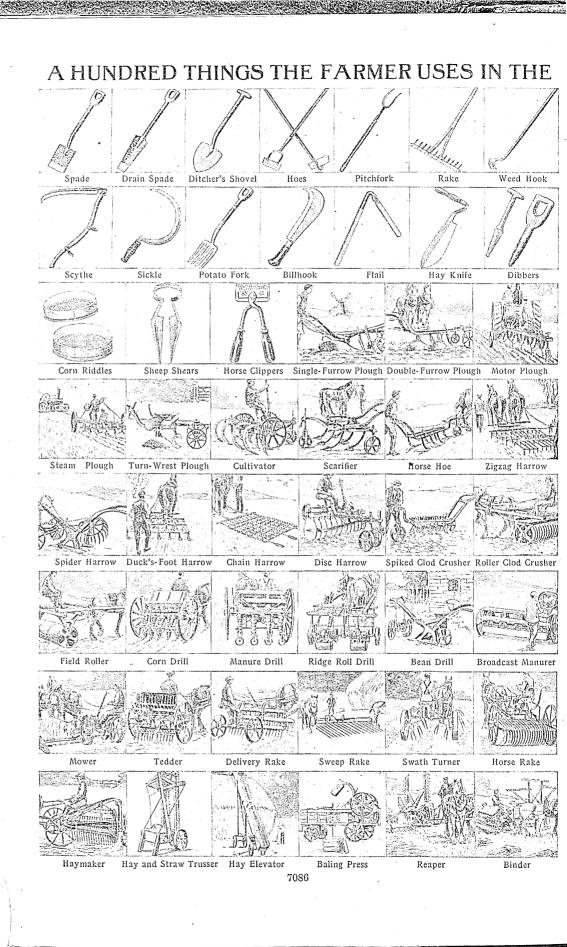
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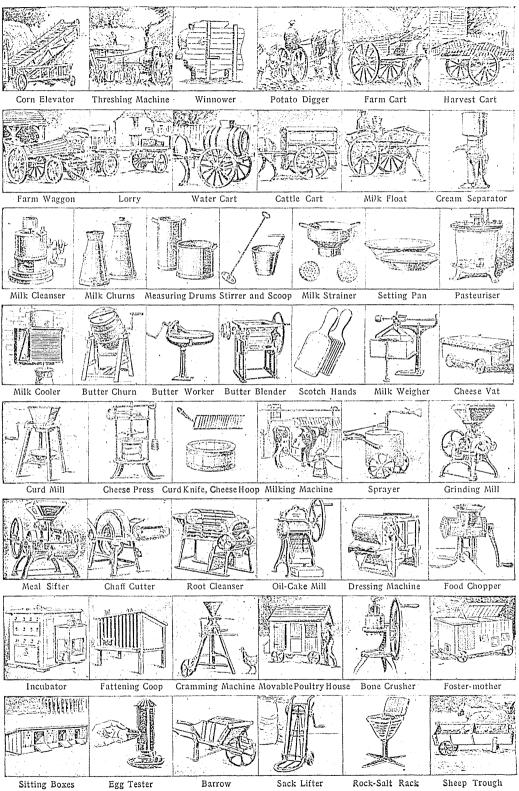
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Africa. Third largest of the continents, having an area of 11,500,000 square miles, about three times as great as that of Europe. From north to south it measures about 5000 miles; but it has only 15,000 miles of coastline, and no large islands except Madagascar. In general Africa is a low 'tableland, its average height being much greater than that of Europe, though there are no great mountain systems except the Atlas, Drakensberg, and Abyssinian ranges. Its highest point is Mount Kilimanjaro, 19,320 feet, near the Equator. Parallel to the east coast is the remarkable Great Rift Valley, containing Lake Victoria Nyanza, after Lake Superior the largest body of fresh water in the world, and Lakes Tanganyika and Nyasa. The Nile drains the north-east of the continent; but by far the greater area drains into the Atlantic, by the Senegal, Niger. Congo, and Orange rivers, the Zambesi being the only great river flowing into the Indian Ocean. Occupying an immense area in the north of the continent is the Sahara Desert, the most arid and desolate region of its size in the world; the Kalahari Desert is another practically waterless region in the south. The population of Africa is estimated at 180 millions, of whom by far the greater number are of the Bantu race; but the north is inhabited largely by people of the Hamitic race, a mixture of early immigrants from Asia and the original population. Aboriginal bushmen are still found in the south. Politically the whole of the continent except Egypt, Abyssinia, and Liberia is under European powers; the British dominions stretch from Egypt to the Cape, while the French govern a vast compact block in the north-west. The centre is covered largely by tropical forests, and as yet has not been crossed by a railway. Africa has a great variety of animal life, having no less than 480 species of mammals peculiar to it, including 95 kinds of monkey and 50 of antelope: 6741 Belgian possessions and how they were obtained, 1948, 3183 British Protectorates, system of government, 3312 civilising

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B.C., and the baptistery of its 11th-century cathedral is believed to have been a temple of Apollo. 30,000 Froment's picture of the Burning Bush in cathedral. 1058

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traversed from east to west by the Great and Little Atlas Mountains, the coastal districts being fertile and populous, though the country becomes more and more arid as it approaches the Sahara. Wheat, esparto grass, barley, wine, and fruit, especially figs and dates, are grown: iron-ore, antimony, and phosphates are mined. Of the population of 5,800,000 about 830,000 are Europeans. The chief towns are the capital, Algiers (210,000), Oran, Bona, Constantine, and Orleansville. Algeria was the stronghold of the Barbary pirates up to 1830, when the French occupied it: 6749

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it has a great trade with Marseilles,
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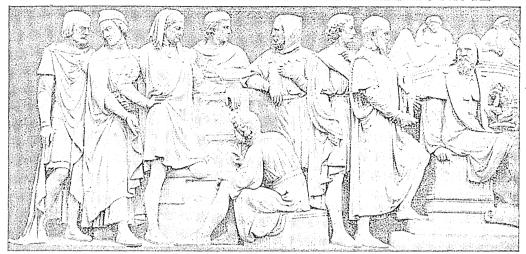
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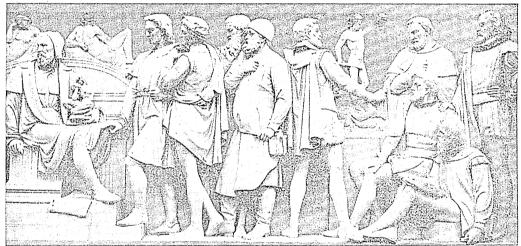
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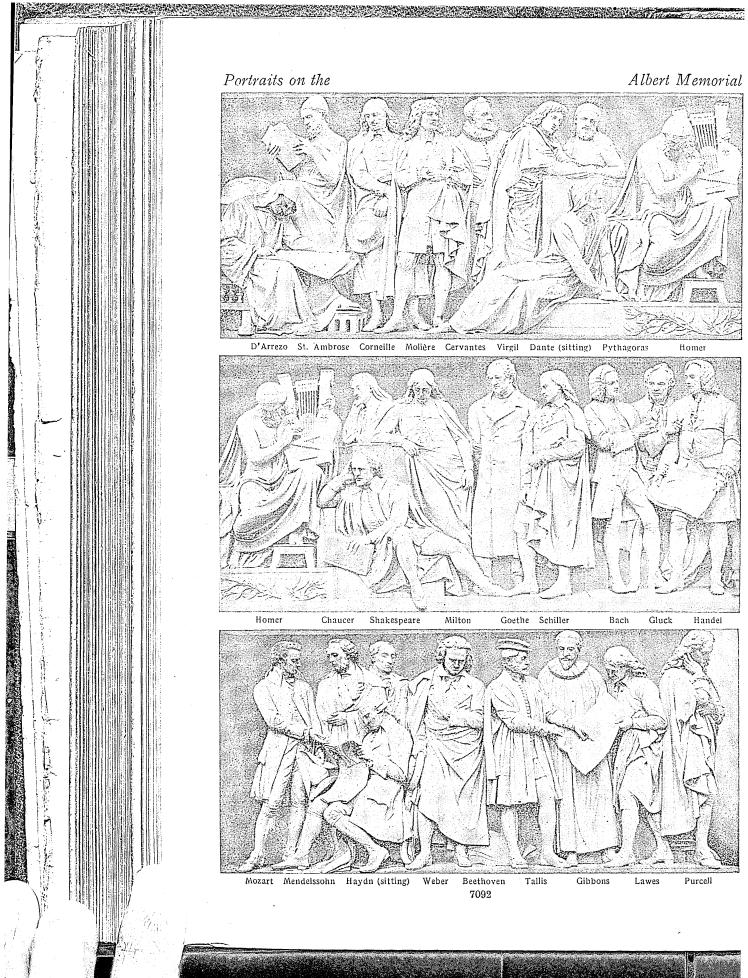
Guiliano Niccola Pisano Ghiberti W. Torel Luca della Robbia (sitting) Wm. of Ireland Verrocchio Donatello Michael Angelo

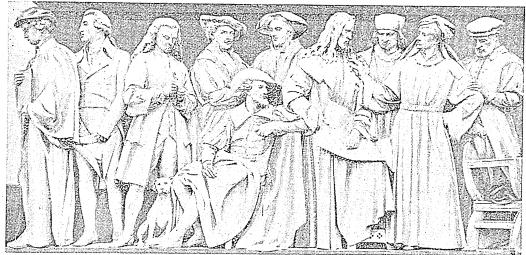


Michael Angelo Torrigiano Gian di Bologna Bandinelli Vischer Cellini Baccio D'Agnolo Goujon & Palissy (sitting) Bontemps

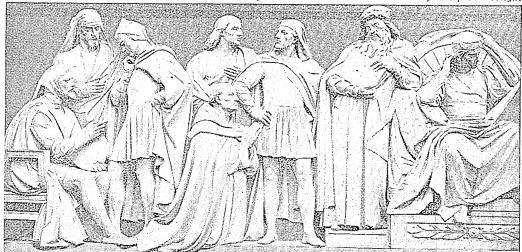


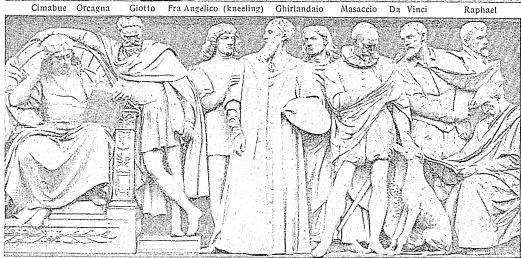
Pilon Cano Stone Bernini Cibber Puget (sitting) Gibbons Bird Bushnell Roubiliac



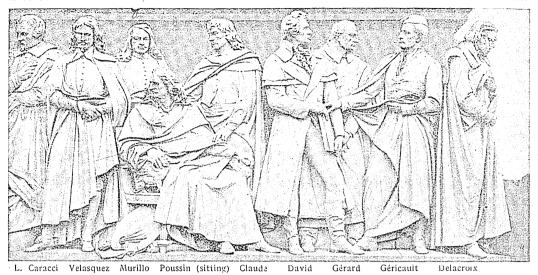


Reynolds Gainsborough Hogarth Rembrandt Rubens (sitting) Holbein Durer Hubert and John Van Eyck Stephen of Cologne



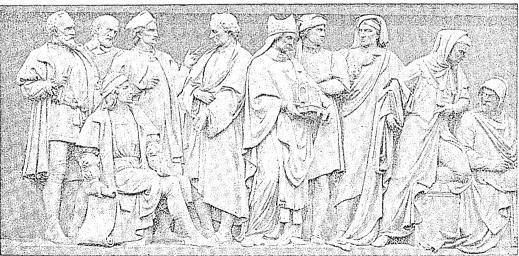


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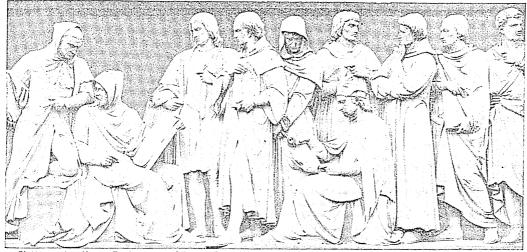




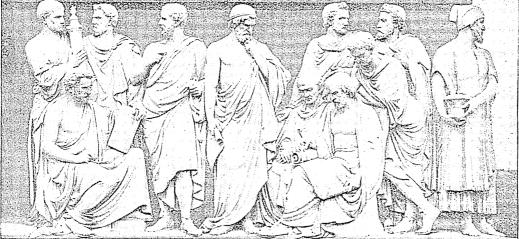
Pugin Scott Cockerell Barry Chambers Vanbrugh Wren (sitting) Inigo Jones Mansart Thorpe Palladio Vignola



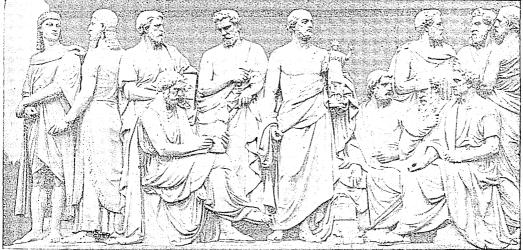
Delorme Sansovino San Gallo (sitting) Peruzzi Bramante Wm. of Wykeham Alberti Brunnelleschi Giotto Arnolfo 7094



Giotto Arnolfo Erwin von Jehan Robert de William of William the Abbé Anthemius Hermodorus
Gi Lapo Steinbach de Chelles Courcy Sens (sitting) Englishman Suger



Apollodorus Callimachus Libon Callicrates Ictinus Mnesikles & Chersiphron (sitting) Rhoecus Metagenes Theodorus Hiram



Egyptian Assyrian Rhoecus Dibutades Bupalus Phidias Scopas Bryaxis & Leochares (sitting) Praxiteles Lysippus Chares
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Alps. Main European mountain system covering 80,000 square miles. 685 miles long, it belongs to France, Italy, Switzerland, Germany, Austria, and Yugo-Slavia, and its main divisions from west to east are the Maritime, Cottian, Graian, Pennine, Bernese, Lepontine, and Rhactian Alps, the Dolomites, and the Venetian, Styrian, Carnic, and Julian Alps. The Alpine region is on an average from 5000 to 7000 feet high, with its culminating region is on an average from 5000 to 7000 feet high, with its culminating point in Mont Blanc, 15,780 feet, in France. Other peaks are Monte Viso, Monte Rosa, and Ortler Spitz, in Italy; the Matterhorn, Jungfrau, and Finsteraarhorn in Switzerland; and Gross Glöckner in Austria. The chief passes are the Mont Cenis, Great St. Bernard, Simplon, Gemmi, St. Gothard, Splügen, Bernina, Maloja, Stelvio, Brenner, and Semmerling. A railway tunnel under the Mont Cenis Pass connects France and Italy; the Simplon and St. Gothard tunnels connect Italy and Switzerland. The Mer de Glace beneath Mont Blanc is the most famous Alpine Glaciet, 4665 famous Alpine Glacier, 4665 Napoleon crosses, 4046

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Alps, Southern. Mountain range in
South Island, New Zealand, containing
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Alsace. Old province of France, between the Vosges and Rhine. Formerly
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a confederation of independent towns, it was occupied by France in 1648, after the Thirty Years' War, remaining French up to 1871, when it was taken by the Germans. In 1918 it was again occupied by France. Strasbourg (180,000), the capital, Mulhouse (95,000), with important cotton manufactures, and Colmar are the principal towns

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Alternate spleenwort, fern in colour,

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Alternator, dynamo for generating half-waves of electricity in opposite directions

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See also Materials, strength of
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Alva, Ferdinand, duke of, Spanish general; born 1508; died Thomar, Portugal, 1582; established the Council of Blood in the Netherlands defeated by William of Orange, 3880 Netherlands devastated by, 5527 Alwoodii, flower, 6379
Alypine, coal-tar product, 4472
A.M., before noon (Latin Ante meridiem)

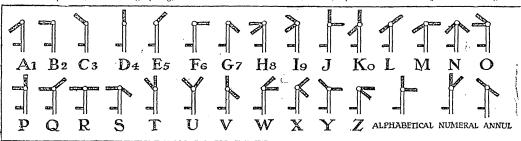
A.M., in the year of the world (Latin anno mundi). The Jews reckon the years from the time the world was supposed to have been created, 3570 R.C. The Jewish year 5685 A.M. is the same as A.D., 1925 but the Jewish year begins on September 26 instead of on the

on September 26 instead of on the following January 1: see page 2293 Amadis de Gaula, Spanish romance whose origin is unknown, 5056 Amalekites, defeated by Israelites, 1860 fought with Israelites, 1240, 1242 Amalfi. Beautiful old city on the Gulf of Salerno, Italy, founded under Constantine the Great. Once a powerful republic, it has a fine Byzantine cathedral. (8000)

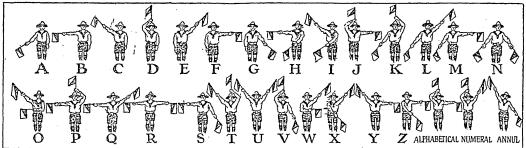
### FIVE ALPHABETS USED EVERY DAY

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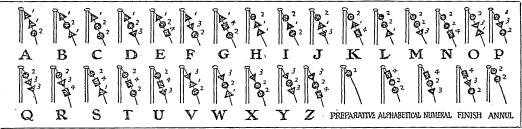
The Morse Alphabet, used in telegraphing, consists of a series of dots and dashes, represented in sound by short and long ticks.



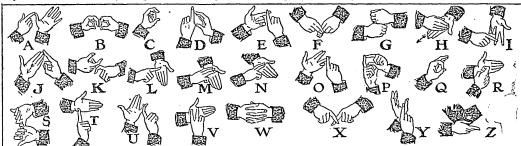
The British semaphore is an arrangement something like a railway signal, for talking at a distance. The different letters are indicated by the positions of one or two arms working on a post.



Semaphoring is also done by means of flags, the alphabet being the same as in the British semaphore.



A system of international signalling has been arranged, letters being represented by the position of cones, drums, and balls.



This is the manual alphabet, which was formerly the only means besides writing which deaf mutes had of communication.

Here are five alphabets which are of the greatest use for talking when ordinary speaking is impossible. In the case of the semaphore, flags, and shapes, signs are given to indicate whether words or figures are intended, and also to show when a message is begun or finished, and when a signal is to be annulled or cancelled.

Amaryllis, family of plants, 2566, 2689,

Amasis, Greek vase painter, 3240
Amati, Nicholas, Italian maker of vlolins; born Cremona 1596; died there 1684; master of Stradivari; see page 3858

page 3858
Amazon, female figure introduced into Greek art by Polyelitus, 4140
name given to priestesses of Cybele, 6986
bronze statue from Herculaneum, 5010
sculpture by Polyelitus, 4148
Amazon River. Greatest river in the
world, draining an area of 2,700,000
square miles. It rises in the Andes and world, draining an area of 2,700,000 square miles. It rises in the Andes and flows 4000 miles through Peru and Brazil into the Atlantic. In many places it is between four and six miles wide, while its chief tributary, the Madeira, almost rivals it in the volume of its waters. Though the Amazon is navigable for ocean steamers up to Iquitos, 2300 miles from its mouth, the only important towns it passes are Manaos and Para. It is estimated that less than a million people live in its basin. Its dense jungles, or selvas, are flooded during the rainy season, 2494 fresh water flows far out to sea, 4638 vast water system, 7002 vivid life of its forests, 7004 voyage of De Orellana, 6996 Amazon stone, 1301
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Ameniotep 111, king of Egypt, 6801 picture, 3806
America. Second largest of the continents, consisting of two main divisions, North and South America, divided by the narrow Isthmus of Panama. Its total area is 16,500,000 square miles, or larger than Europe and Africa together. Geographically America is remarkable for the lofty ranges of mountains which traverse both divisions from north to south near the Pacific coast; while in each division there is a much lower mountain system towards the Atlantic. The central plains of North America stretch from the Gulf of Mexico to the Aretic, between the Appalachians and the Rocky Mountains, and contain the vast prairies of Canada and U.S.A., the most productive agricultural region in the world. Here are the Mississipping the contract of the contra vast prairies of Canada and U.S.A., the most productive agricultural region in the world. Here are the Mississippi and Missouri and the magnificent waterways of the St. Lawrence and the Great Lakes. The eastern seaboard is a thriving industrial centre; while the Pacific coast is famous for its beautiful climate and great mineral wealth. The agricultural pasternal and mineral recannaw and great mineral wealth. The agricultural, pastoral, and mineral resources are nearly everywhere very great, the islands of the Caribbeau Sea being especially fertile and prosperous.

prosperous.

North America may roughly be divided into Greenland, British America, U.S.A., Mexico, the West Indies, and the Central American republics; it has a total area of nine million square propulsion of the central formulation. has a total area of nine million square miles and a population of about 150 millions, of whom about 110 millions live in the United States. By far the greater proportion of the population is of European descent, though there are a few Eskimos and Red Indians in Canada and many Negroes in the West Indies and the United States.

South America is remarkable for the lofty chain of the Andes, the longest mountain range in the world, and the manufacturing tentre, on the Somme. It has a noble centre, on the Somme. products; but among the Andes the climate is in most places cool and pleasant. The south, especially Argentina, Chile, and Uruguay, has a fine temperate climate, and here great crops of cereals are grown and vast numbers of cattle reared. Mineral wealth abounds in nearly every State. The abounds in nearly every State. The population of South America is about 70 millions, largely of Spanish and mixed Spanish and Indian descent, and Spanish is practically the universal language. Portuguese, however, is the language of Brazil, while in southern Brazil there are large numbers of Germans. Both the Amazon and the Parana provide magnificent highways into the heart of the continent, and the development of the interior is and the development of the interior

making enormous strides. Immigration, especially from Spain and Italy, is rapidly increasing discovery of, 1013 animals: see American badger, and so on animals that became extinct, 1772 art: see American art British colonisation of, 5207

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American opossum, 2396
American robin, bird, 3017
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Ammeter, for measuring in ampères the strength of electric eurrents
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See Weights and Measures, units of electricity

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Amritsar. Sacred city of the Sikhs, in the Punjab, India. Here is the Golden Temple by the Pool of Immortality. 170,000 Golden Temple, 2953 Indian boys at school, 2954
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min in the desert. In its said to have been much tempted by the devil in many forms, and his temptations are a favourite subiect with artists. Antrim. Most populous county of Northern Ireland, with an important linen industry. The chief towns are Belfast, the capital, Larne, Lisburn; and Carrickfergus; on the north coast is the Giant's Causeway and in the west Lough Neagh. Area 1176 square miles: population 580,000 Carron Tower, 2006
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Aquileia. Decayed Italian town on the
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Isonzo. It has an 11th-century cathedral and a museum with many valuable
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Arabian Sea, part of the Indian Ocean lying between India and Arabia. It contains the Laccadive and Kuria Muria Islands and Socotra

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Arabs, a pure Semitic race of the Nejd plateau who have absorbed most other Semitic races except the Jews and Himyarites of Abyssinia. They have also ranged over Mesopotamia and Syria, having long inhabited Damascus, Aleppo, and Baghdad. A race of great authors and magnifications of the seminary of the seminary control of the semin Aleppo, and Baghdad. A race of great culture and monotheistic in religion, its influence has been almost as great as 'that of the Jews: 6261
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Aracari, double-collared, bird in colour, 3141

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Aragon. Once a powerful Spanish kingdom, including the old provinces of Catalonia and Valencia; the Balcaric Islands; and Naples, Sicily, and Sardinia in Italy. The marriage in 1460 of Ferdinand of Aragon and Isabella of Castile was the foundation of modern Spain, 5270

Aragonite, carbonate of calcium, mineral, 1303

Aral, Lake. Inland sea in Turkestan, fed by the Amu Daria and Syr Daria rivers. Only slightly salt, it has an area of 26,000 square miles, but is decreasing in size owing to evaporation: 2494

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Arch

perfectly free, with no chiefs or penal code, but all animated by a strong sense of duty, 7014

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Archimedes, Greek scientist, most
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born Syracuse about 287 B.C.: killed
there 212: see pages 1290, 6804
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Arctic Ocean. Smallest of the oceans, lying north of Europe, Asia, and America. It contains the Greenland, Kara, Beaufort, Barents, and White Seas, but except in the Greenland and Barents Seas navigation is nearly always impeded by ice. Here are Spitsbergen, Nova Zemlya, Franz Josef Land, Wrangel Island, the New Siberia Islands, and the Canadian Arctic Archipelago
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Arden. Wooded district in Warwickshire, the remains of the Forest of Arden of Shakespeare's As You
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Like It
Ardennes. Rugged forest plateau in
Belgium and northern France, containing some of the most picturesque
scenery in Europe. Wild boar and red
and roe deer still abound in its fastnesses, but the last wolf was killed in
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Areopagus, court in Athens, 1355
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Ares, war god of ancient Greece, 3516
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Arethusa, mythological nymph, 3530
Aretino, Spinello, Italian painter of the Florentine school, a follower of Giotto; born Arezzo about 1330; died there 1410: see page 573
Arezzo. Old city of Tuscany, Italy, famous for its pottery manufacture. It has a Gothic cathedral with many fine sculptures and a museum of Etruscan remains. 50,000
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Argentina. Second largest South American republic; area 1,150,000
square miles; population 9,000,000; capital Buenos Aires (1,800,000). Famous as one of the world's chief granaries, in 1921–22 it produced 4,600,000 tons of wheat and 900,000
Crapital Buenos Aires (1,800,000). Famous as one of the world's chief granaries, in 1921–22 it produced 4,600,000 tons of wheat and 900,000
tons of linseed, while its export of frozen meat is also very important. In 1914 there were 26 million cattle and 43 million sheep. The chief towns are Rosario (280,000). Cordoba (160,000). Tucuman, La Plata, Santa Fé, Mendoza, and Bahia Blanca; immigration, chiefly from Spain and Italy, is rapidly increasing the population, 7012
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Argyllshire. Rugged county of western Scotland, including many of the Inner Hebrides. Campbeltown, Oban, and Inveraray, the capital, are the chief towns. Area 3110 square miles; population 77,000

A.R.H.A. stands for Associate of the Royal Hibernian Academy, the Aca-demy of Ireland

demy of Ireland
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Arica. Port of northern Chile, the
terminus of a railway from La Paz,
Bolivia. It exports copper, gold,
silver, iron. sulphur, salt, guano, and
borax. 10,000: see page 7014
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Aristides, surnamed The Just, Athenian
statesman and general, rival of Themistocles; died Athens about 468 B.C.:
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asked by peasant to mark his vote, 3122 portrait, 3119
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Aristophanes, Athenian poet, greatest Greek writer of comedies; flourished 427–388 B.C.: see page 5185
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Aristotie, Greek philosopher, founder of the Peripatetic school; born Stagira, Chalcidice, 384 B.C.; died Chalcis, Euboea, 322 B.C.; pupil of Plato and tutor of Alexander the Great: 1287, 2153, 5824
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France, having been important in
Roman times and earlier. Its Roman
remains include the palace of Constantine, an aqueduct, baths, and an
immense amphitheatre for 25,000
spectators. The Romanesque church
of St. Trophime, formerly a cathedral,
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Armagh.

Armagh.

Capital of Co. Armagh,
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Armistice, mutual agreement by two belligerents to suspend warlike operations for a stated time. It frequently precedes peace negotiations as in November, 1918

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feet in Goat Fell Arras. Ancient capital of Arrois, France, once famous for its tapestry. It suffered severely during the Great War, its fine cathedral and town hall being ruined. 25,000 fine town hall, 6359 weaving of tapestry, 6738 town hall before bombardment in Great War, 1710, 6360 Arras Road, The, Corot's fine painting in the Louvre, 2791 Arrhenius, Dr., on world's declining oil supplies, 2963

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A.R.S.S. stands for Associate of the Royal Society of Antiquaries, (Latin Antiquariorum Regiae Societatis Socius)

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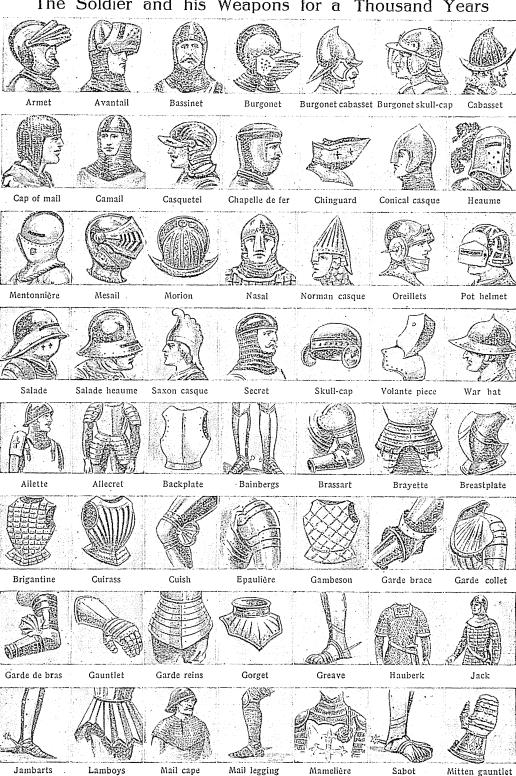
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## ARMS AND ARMOUR OF THE AGES

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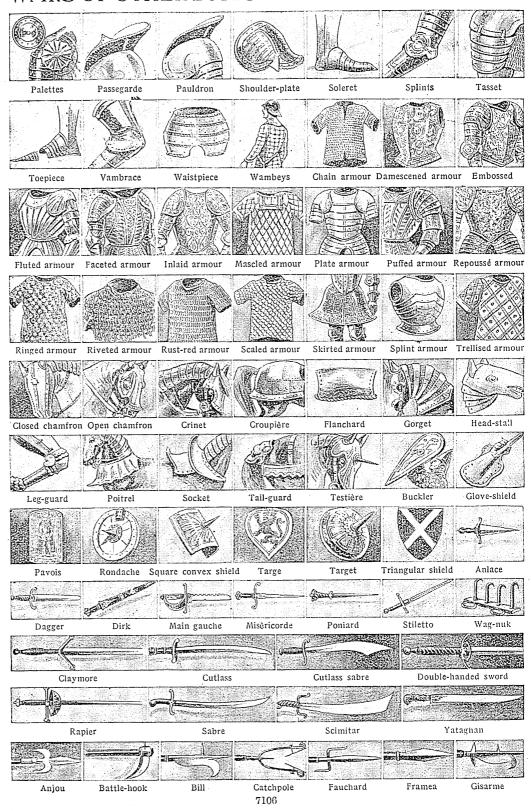


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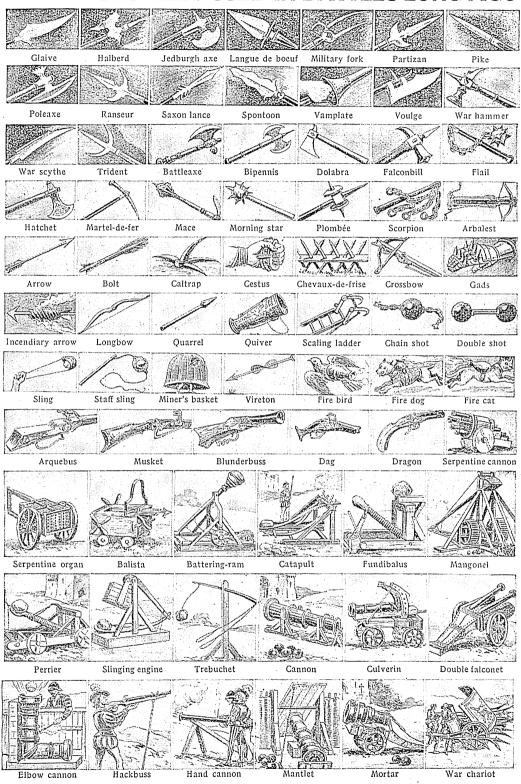
Sabot

Mitten gauntlet

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Asia. Largest of the continents, having an area of 16,600,000 square miles, or about one-third of the world's land surface. Its population is estimated at about 1000 millions, more than half the population of the world (Geographically the most important feature of Asia is the lofty Pamir Plateau, from which radiate stupendous mountain ranges exceeding even the 2080 Plateau, from which radiate stupendous mountain ranges exceeding even the Andes in height. These include the Himalayan, Karakoram, Hindu Kush, and Kwenlun ranges. A vast area of the continent consists of lofty and sparsely populated tablelands, chief of which is the great plateau of Tibet, 10,000 to 17,000 feet high. On the other hand, the mountains give rise to a remarkable number of great rivers, and these have some of the most fertile a remarkable number of great first, and these have some of the most fertile and populous basins in the world. The population in the valleys of the population in the valleys of the Ganges and the Yangtse-kiang is in

many places denser even than in the industrial districts of Europe. The vast plains of Siberia, however, are vast plains of Siberia, however, are generally too cold to support a large population. Asia possesses a greater number of important islands than any other continent, notably the East Indies, the Japanese Empire, the Philippines, Cyprus, and Ceylon. The agricultural wealth especially of China, India, and the East Indies is enormous. China prepar has about 400 william. China proper has about 400 million inhabitants and India 320 millions. Mineral wealth is exceedingly great and widespread, China alone having half a widespread, China alone having half a million square miles of coal-beds. The people of Asia may be divided into three main groups: the Caucasian in western Asia and India; the Mongolian in central and eastern Asia; and the Malay in the extreme south-east and in the East Indies. In addition, there are Dravidas in south-east India and some Negrito tribes in the eastern archipelago, besides large numbers of Europeans in Siberia. Over half the population hold the Buddhist religion, or religions akin to it; there are over 100 million Mohammedans, and, in India, over 220 million Hindus philosophers of, 5077 effect of climate, 2029 deserts of, 2375 pminosopners of, 5077
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mental atmosphere compared with that
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population, 2042
population under British rule, 1941
general map, 6632
See also under names of countries
Asia Minor. Westernmost peninsula
of Asia, forming part of the Turkish
Empire. Though generally mountainous, a great part of the country is
exceedingly fertile, producing large
quantities of cereals, fruit, cotton, and
tobacco. Smyrna (200,000), Broussa
(100,000), Angora, Konia (Iconium),
and Trebizond are the chief towns
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population 7,600,000; capital Shillong. The tea-gardens here have an area greater than those of all the rest of India, while the rainfall averages 100 inches annually: 2621

Assam rubber tree, member of Fig family, 2568, 2567
Ass and the Dog, fable, 4116

Asshur, Assyrian god, sculpture, 3898

Ass in the Lion's skin, fable, 4246

Assiout. Town of Upper Egypt, centre of an extensive caravan trade. Near

# A LITTLE DICTIONARY OF ART IN 100 PICTURES









mosaic

ABACULUS
Le of glass, marble, An epaulette worn in the An elliptical aureole composition used 13th century. The word surrounding divine figmosaic pavements. means "little wing." ures in early paintings.

ALTO-RELIEVO
Used of sculpture pro- A form of Greek vase jecting almost entirely pointed so that it could from the general surface. be stuck into the ground.











APPLIQUE ARABESQUE ASCOS ATLANTES AUREOLE
Ornaments let into or Ornaments of interlaced An antique vase for Athletic male statues The luminous circle
fixed to an object, ascan-foliage, flowers, and ointment or perfume, supporting parts of an-round the heads of delties
delabra on a wainscot. fruit, but not animals, shaped like a wine-skin, cient Greek buildings, and saints in pictures.











BALDACHINO
BANDEROLLE
A canopy of wood, stone, A wavy band bearing Sculptured figures pro-Sepulchral monuments The starf carried by Meror metal supported on an inscription; also a jecting from a surface, consisting of brass plates cury or Hermes with pillars or suspended over square banner displaying but considerably less than engraved with effiges, wings and serpents, an altar or a throne, arms, carried at funerals, those of an alto-relievo, scrolls, and inscriptions, often a symbol of peace.











CANDELABRUM
An ornamented candle A scroll or space for an Sculptured female fig. A Greek vase of the Enamelled warein which stick or lampstand, usu-inscription or emblem, ures supporting parts of form shown here, having the enamel is in partially withseveral branches very often ornamented. old classical buildings. two handles and a foot tions divided by metal.











CONSOLE CORNUCOPIA COTYLISCUS CYATHUS CYLIX

A decorative table with A horn filled with A small type of Greek A Greek cup with one A shallow Greek bowl balustrades or legs, flowers and fruit. A vaselike an amphora, but handle, often seen pic-mounted on a foot and usually before a mirror. symbol of prosperity, with one handle only, tured on classical vases. fitted with two handles.









DAMASCENED

DIPTYCH

**ENCARPA** 

**ESCUTCHEON** 

Used of an iron or steel A carved or painted A festoon of fruit or A table on which are A graceful and richly surface richly inlaid panel, often in ivory, flowers decorating frie-coats-of-arms; also a ornamented vase with with designs in metal. folded in two by hinges. zes or other flat surfaces. plate for a key-hole. one handle and a foot.



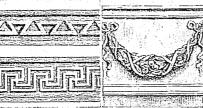


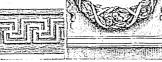
**FALDSTOOL** 

FLABELLUM

FLEUR-DE-LYS FLORY

Pottery composed of A portable folding seat A large fan of peacock A fleur-de-lys elabor- A wall-painting executed glazed earthenware or used by a bishop in feathers used in medie- ated with buds, foliage, on a ground of lime or porcelain, some dating a cathedral, and often val times and retained in or scrolls, and generally gypsum. All wall-paint-back to the 9th century. pictured in manuscripts. certain Papal ceremonies used to adorn hangings. ings are not frescoes.









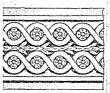
GARLAND

Broken or interlaced An ornament of flowers, lines forming an angular foliage, and fruit plaited pattern to a moulding. and tied with ribbon.

GIROUETTE

**GONFANON** 

A metal ornament on A small banner or a flag A modern imitation of the top of a roof, often borne on a lance and ancient candelabrum a weathercock. ending in points. used for lamps or flowers











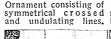
GUILLOCHE

HERMAE

HERRING-BONE

ILLUMINATION

LAY-FIGURE



Ornament consisting of Heads on quadrangular A pattern of lines sloped Embellishing of manu- A figure made of wood symmetrical crossed stone pillars diminish- alternately from left to scripts with drawings or metal, and jointed and undulating lines. ing toward the base. right and right to left. and ornamental letters. to be posed for a model.





LIMBUS

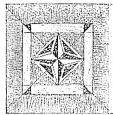
LINE

LINE OF BEAUTY

MAJOLICA

MANDUCHUS

A border embroidered on a scarf or tunic, and resembling a simple with a spectator's eye. The base of his portrait. When it is about level curve, as he drew it at from Majorca, from ancient actors, and architectural moulding.











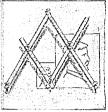
MARQUETRY MEDALLION MINIATURE MOSAIC
An inlay or kind of A big medal such as was A very small portrait Any picture or design The small pestle of stone
mosaic, executed in wood struck by Roman emper-painted in water-colours consisting of small or glass used by painters
with other materials. ors, now usually cast, with the point of a brush, pieces of hard substances, to grind their colours.











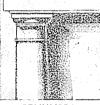
NIMBUS ORB ORIFLAMME PANEL-PICTURE PANTOGRAPH
A halo or disc of light A round globe repre-The ancient royal banner A picture painted on a An instrument used for surrounding the head of senting the earth, with of France, having three piece of wood. Often copying rapidly a drawadeity, angel, or saint a cross on top. It is the points, and now often the frame is itself a ing which has to be on a religious picture. symbol of regal power carried in processions. part of the main panel. enlarged or reduced.













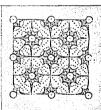
PAX PELICE PENTACLE PENUMBRA PIEDOUCHE
A plaque of metal A form of Greek vase A figure used in early The boundary of shade A small pedestal which adorned with a religious something like the am- ornamental art, con- and light in a painting, supports a sculptured picture, formerly much phora, but more taper- sisting of a double tri- where one is seen to bust, usually enriched used in church services. ing. It has two handles. angle arranged as shown. blend with the other, with several mouldings.











POLYPTYCH PORTE-CARTON POTICHE PRESENTOIR QUINCUNX
Altar-pieces and other A piece of furniture A Japanese or Chinese A shallow ornamental An arrangement of five
folding pictures consist- for holding drawings vase, round in form, cup with a tall decora- objects in a square, one
ing of several leaves or engravings, and ar. and with a short neck, ted stem, in vogue being at each corner
closing over one another. ranged like an X or Y. It is usually of porcelain. in the 16th century, and one in the centre.



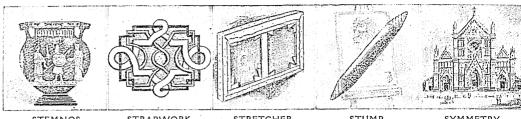








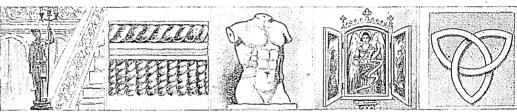
RINCEAU SCONCE SCROLL SKELETON SQUARING A design consisting of A candlestick in the An ancient form of A framework of iron The process of dividing sprigs of foliage arranged form of a decorative decorative ornament bars, round which a a sketch into squares for in scrolls, often as bor- bracket, and usually hav- on old monuments, but clay or plaster model is redrawing larger or smalders of mural paintings. ing an embossed plate much elaborated later. built up. It lends strength. ler, square by square.



STEMNOS STRAPWORK STRETCHER STUMP SYMMETRY
A high-shouldered, A form of decorative A wooden frame upon An instrument used for A principle of ornament short-necked Greek vase ornament with interwhich a painter's canvas rubbing down hard lines in which the details of with two handles, often laced bands, fashionable is stretched and held fast in pencil or crayon. It a design are reversed on very highly decorated in the 15th century by several small nails. consists of a roll of paper. each side of an axis.



TAILPIECE TANAGRA FIGURES TAPESTRY TAZZA A decoration at the end Delicate Greek terra-Threads woven into a A shallow vase having The stalks and clasps of of a chapter in a book, cotta figures, often gilded, beautiful design, and a foot and two handles, the vine used decorarely to occupy space named from the place described as "paint-This design is often exetively on vases and other and partly for effect, where they originated ing in textile fabrics." cuted in terracotta. similar works of art.



TORCHERE TORSADE TORSO TRIPTYCH TRIQUETRA
A figure in metal sup- A French form of orna- The trunk of the human A painted panel with An interlaced ornament
porting a candlestick, ment in imitation of body. Applied to statues two painted leaves of the form shown here,
and sometimes used of a twisted cable; also from which head and which can be made to and often found in the
any candelabra support. used of fringe borders. limbs have been broken. cover the main picture. art of Northern Europe.



TROPHY UNCIAL UNGUENTARIUM URN VANISHING POINT A decorative ornament A term used of manu- A small Greek vase or A large classical vase The point in a picture at consisting of a group of scripts in which the text bottle of very simple with a narrow neck and which all the imaginary arms and armour bound consists of capital letters, form which contained swelling body, and often lines of the perspective, if and hung from a wall. often richly ornamented. the oil used by athletes. decorated in bas-relief. continued, would meet.



VERMICULATED VESICA PISCIS VITRUVIAN SCROLL WEDGE WEDGWOOD A surface is said to be Literally, the bladder of A florid form of decora- A small piece of wood The most beautiful of vermiculated when it a fish. It means the tion, consisting of placed under the heel of a English pottery, formed is covered with irregu- elliptical aureole round scrolls, in which animals living model for support, after Greek models and lar, worm-like lines, the figures of Jesus, were often introduced. It is seen in statues, named from its maker.

Assi here is the Assiout Barrage across the Nile which irrigates the country to within a few miles of Cairo. 55,000 within a few miles of Cairo. 55,000 picture, 6869
Assisi. Cathedral city of central Italy, famous as the birthplace of St. Francis, who established the Franciscan order here in 1208. The monastery has two churches, built one above the other, with frescoes by Cimabue, Giotto. and others. 20,000: see pages 568, 573 church of St. Francesco, 5993, 6000
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Assouan. Town of Upper Egypt, on the Nile. Near here is the Assouan Dam, which has a storage capacity of 2420 million cubic metres of water for irrigation. 15,000
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Asti. City of Piedmont, Italy famous for its sparkling wine. It has a fine 13th-century cathedral, and manufactures silk, leather, and hats. 40,000 Astragalus, genus of order Leguminosae, 6492
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Astrakhan, Russian port near the
entry of the Volga to the Caspian. A
dirty, semi-Oriental place, it is a
centre of trade with the Near East,
and has a cathedral and some 40
Greek churches. Its sturgeon fishery is
famous. 200,000
Russia annexes, 5893
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HEAT AND LIGHT RECEIVED BY
THE PLANETS Reckoning the heat and light re-ceived by the Earth from the Sun as 1000, the amount received by the other planets is as follow:

Mercury . 6800 Jupiter . 40
Yeaus . 1900 Saturn . 10

.. 1000 Uranus

440 Neptune ..

Earth

INDEX DISTANCES OF PLANETS FROM EARTH **Greatest Distance** in miles 137,910,000 162,229,000 Mercury .. Venus Mars 249,384,000 Jupiter Saturn .. 601,540,000 .. 1,960,583.000 Uranus .. 2,913,644,000 Neptune .. Least Distance in miles 48,020,000 23,701,000 33,916,000 Mercury .. Venus Mars Jupiter Saturn 365,816,000 742,646,000 .. 1,606,183.000 Uranus .. 2,674,357,000 Neptune .. RELATIVE GRAVITATION ON THE SURFACES OF SUN AND PLANETS The pull of gravitation on the surface of other planets varies very much from the pull of the Earth, and reckoning the Earth's gravitation as 100 the relative pull on the Sun and other planets is:  $\frac{2770}{38}$  $_{\rm Jupiter}^{\rm Mars} \ \ldots$ Mercury 261 Venus 26 Saturn 119 Uranus 100 Earth .. Neptune .. 88 SUN STATISTICS

Mean distance of Sun from the Earth, 92,965,000 miles
Greatest distance of Sun from the Earth,
94,524,000 miles
Least distance of Sun from the Earth,
91,406,000 miles

91,400,000 miles Diameter, 867,000 miles Mass, reckoning the Earth as 1, 333,000 Density, reckoning the Earth as 1, 25 Volume, reckoning the Earth as 1, 1,305,000

Force of gravity at the surface, reckoning the Earth as 1, 27.7
Period of rotation on its axis 25 days 7 hours, 48 minutes Speed of rotation at its equator 4407

Speed of rotation miles an hour miles, surface in square miles, 2,283,621,466,000

Surface area equals 12,000 times that of the Earth Volume 339,300,000,000,000,000 cubic

miles Total attraction between Earth and Sun equals the pull of 3,600,000,000,000 tons

Energy radiated from each square foot of surface equals 15,000 horse power Temperature about 10,000 degrees

Fahrenheit
Mass of the Sun in tons,
1,998,000,000,000,000,000,000,000

1,375,000,000,000,000,000,000,000 Candle power, 1,575,000,000,000,000,000,000 Height some flames rise from the surface, 286,000 miles SPEED OF PLANETS ROUND THE SUN

Per second Miles Per day Miles 20 2,505,000 1,873,000 Mercury Venus 21.71,555,000 1,287,000 771,000 536,000 18 Earth 14.9 Mars 8 6·2 Jupiter Saturn . . Uranus 4.3379,000 3.1 268,000 Neptune ..

STATISTICS OF THE EARTH Polar diameter, 7899 6 miles Equatorial diameter, 7926 6 miles Circumference at the Equator, 24,899 Area of the surface, 197,000,000 square

Mass (weight), 6,000,000,000,000,000,000,000 tons Earth's orbit, 589,000,000 miles

Speed travelling round the Sun, 66,000 miles an hour Amount of the Sun's energy received,

one-two-thousand-millionth
Weight of the atmesphere, estimated,
11,600,000,000,000,000,000 pounds
Area of the sea, 142,000,000 square Area o

of the land, 55,000,000 square miles

DISTANCE IN MILES OF THE PLANETS FROM THE SUN

Mean Distance . 35,987,000 . 67,245,000 . 92,965,000 Mercury Venus . . Earth 141,650,000 483,678,000 886,779,900 1,782,000,000 Mars Jupiter .. Saturn .. 1,782,000,000 .. 2,800,000,000 Uranus Neptune ..

Least Distance Greatest Distance 43,386,000 67,705,000 28,588,000 66,787,000 Mercury Venus 91,406,000 128,440,000 460,340,000 837,170,000 1,700,707,000 2,768,881,000 Earth 94,524,000 154,860,000 Mars Taris 154,800,000
Jupiter 507,016,000
Saturn 936,388,000
Uranus 866,059,000
Neptune 2,819,120,000

YEARS OF THE PLANETS
The period of revolution round the
Sun of the different planets varies
enormously, and is given here, this
period being the length of the planet's
year in each case.

Days Hours Minutes 87 224 Mercury 16 Venus 48 Earth 365 31 2 93 Mars 686 Jupiter  $\frac{4332}{10759}$ 16 Saturn 5 30,688 Uranus 60,180 20  $\frac{1}{38}$ Neptune ... SPEED NEEDED FOR ESCAPE FROM THE

SPEED NEEDED FOR ESCAPE FROM THE SUN AND PLANETS
If a body were started with sufficient speed it would pass away from the Earth into space. Here are the speeds with which bodies would have to start to escape from the Sun and its various planets in miles per second. Earth . 6-95 Mars . 3-13 Moon . 1-48 Jupiter . 37-16 Sun . 380 Seturn . 92-07 Sun . 380 Seturn . 92-07 . Mars ... Jupiter ... Saturn ... Uranus ... .. 380 Sun .. 38 Mercury .. 22.97 2.45 Uranus ... 6.37 Neptune ... Venus

FIRST MAGNITUDE STARS
The twenty brightest stars in the
heavens are known as First Magnitude
Stars, and are as follow:
Star Constellation
Star Constellation
Stary Constellation

Constellation
Canis Major or the
Great Dog
Argo or the Ship Argo Sirius .. Canopus Alpha Centauri Centaurus or the Centaur Arcturus Boötes Rigel ... Capella.. Orion

Auriga or Wagoner
Lyra or the Lyre
Canis Minor or
Little Dog Vega Procyon Betelgeuse Orion Eridanus, or the River Achernar Eridanus Taurus or the Bull Aldebaran Beta Centauri Centaurus or the Centaur Crux or the Southern Cross Alpha Crucis ...

Antares Scorpio or the Scorpion Altair .. Aquila or the Eagle Virgo or the Virgin Piscis Australis or the Spica Fomalhaut Southern Fish Crux or the Southern

Beta Crucis Cross Gemini or the Twins Pollux .. Leo or the Lion Regulus

#### BRIGHTNESS OF THE STARS

It is estimated that the other stars are brighter than one of the sixth magnitude by the number of times shown

A star of the: Fifth magnitude ... Fourth magnitude ... 2 times 6 times 12 times Third magnitude Second magnitude First magnitude 25 times 100 times Sirius, the brightest star 400 times The Sun, our nearest star 2,400,000,000,000 times

VOLUME, MASS, DENSITY, AND AREAS OF THE PLANETS

This table shows the relative volumes, or bulk, the mass, or weight, the density, or compactness, and the surface, or area, of the various planets, reckoning the Earth as 100 in each case.

Volume Mass Density Surface Mercury 5.6 4.7 Venus 92 82 89 Earth 100 100 100 Mars 15 10.8 71 28 Jupiter 130,900 31,770 24 11.690 Saturn 76,000 9480 13 8330 22 Uranus 6500 1460 1590 Neptune 8500 1700 20 1890

RELATIVE SIZES OF THE ORBITS OF THE PLANETS

If the orbit of Mercury round the Sun is represented by a circle one inch in diameter, the relative sizes of the diameters of the orbits of the other planets are as follow:

Inches Orbit of Inches Orbit of Mercury 1 Jupiter .. 13.4 .. 1.9 Saturn Venus .. 24.6 The Earth . 2.6 Uranus .. 49.5 .. 3.9 Neptune .. 77.5 Mars DIAMETERS OF THE SUN AND MOON AND PLANETS

miles Sun.. . 866,500 Mars Jupiter .. 90,190 Moon .. 2163 Mercury.. 2765 Saturn .. 76,470 Venus 7826 Uranus .. 34,900 Earth .. 7918 Neptune 32,900

FACTS AND FIGURES ABOUT THE MOON Diameter, 2163 miles
Circumterence, 6795 miles
Surface area, 14,660,000 square miles
Volume, 5,300,000,000 cubic miles
Mass, 78,000,000,000,000,000,000 tons
Mean Distance from Earth, 238,000

Mean I miles Greatest Distance from Earth, 252,970 miles Least Distance from Earth, 221,600

Circumference of Moon's

1,500,680 miles Speed in its orbit, 2288 miles per hour,

or 3357 feet per second Full Moon's light is one-618,000th of sunlight Amount of sunlight reflected, 17 per

cent Estimated day temperature, 200° Fahrenheit Estimated night temperature, — 200°

Fahrenheit Diameter of Ptolemy, the biggest crater, 115 miles

Depth of deepest crater, Theophilus, 19,000 feet Height of tallest mountain, Leibnitz, 24,970 feet

Zator retet
Time of one revolution round Earth
27 days 7 hours 43 minutes 11
seconds

seconds
Force of gravity at Moon's surface is
four-twenty-fifths that of the Earth
Weight of a terrestrial pound on the Moon, 21 ounces

Outside diameter of outer ring 166,920 Inside diameter of outer ring .. 147,670 Distance from outer to inner

ring ..... 1680 Outside diameter of inner ring 144,310 Inside diameter of inner ring. 1109,100 Inside diameter of the dark ring 91,780 Distance from the dark ring to

the planet ....... Equatorial diameter of the Breadth of entire system of

Astyages, last Median king, conquered by Cyrus: reigned 584-549 B.C. Asuncion. Capital of Paraguay, on the Paraguay River. An important trading centre, it has a university and a cathedral. 80,000: see page 7012 government palace, 7009 As You Like It, Shakespeare's most charming comedy, 984, 6047 Rosalind and Celia in Forest of Arden, 1103

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Rosalind gives Orlando a chain, 1103
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The group includes the well-known
Apaches and Chipnewayans

The group includes the well-known Apaches and Chippewayans Athanasian Greed, not compiled or mentioned by Athanasius, 1386 Athanasius, St., one of the fathers of the Christian Church; born Alexandria about A.D. 296; died there A.D. 373: see page 1385 portrait, 1385

see page 1385
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Athelhampton Hall, Dorset, 6236
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temple of Pallas Athene, 3515
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creator of the Laocoön group 4396
Athens. Capital and ancient centre
of culture of Greece, containing remains of the Parthenon, Propylaca,
Theseum, and several splendid temples.
Now mainly modern in appearance, it
has a great trade by way of Piracus.
450,000
Athens, ancient, Attic art's centre, 4138,

Athens, ancient. Attic art's centre, 4138, 5496

5498'
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statue of Artemis one of oldest specimens of Greek sculpture, 4026
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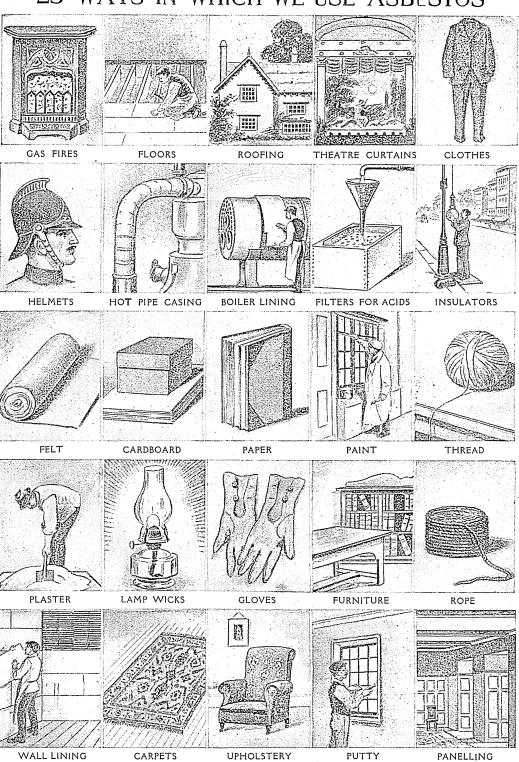
ancient castle and some textile manufactures. (7500)
River Shannon at, 3068
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Atlanta. Capital and largest city of Georgia, U.S.A., trading chiefly in cotton and tobacco. 210,000
Atlantic cable, how is a fault found? 930
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Atlantic City. Seaside resort in New Jersey, U.S.A., with a splendlid beach and aerodrome. 60,000: see page 3802
Atlantic Ocean. Second largest of the oceans, occupying about 26 million square miles. It lies in two main basins, the North and South Atlantic, divided roughly by the Equator: the North Atlantic is 1750 miles broad between Ireland and Newfoundland, widening to 4500 miles farther south; the South Atlantic reaches its greatest breadth of 3700 miles where it merges into the Antarctic. The greatest depth is 4500 fathoms in the Nares Deep near the Bahamas. The Atlantic receives the waters of a greater number of large rivers than any other ocean, its drainage area being four times as great as that of the Pacific airship first crosses, 4452
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Atmosphere, gaseous matter round the

fable of, 3531
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#### 25 WAYS IN WHICH WE USE ASBESTOS



We all know the asbestos in our gas-stoves, which gets red-hot yet never burns. We may not know, however, that this fibrous mineral, which is found in many parts of the world, is used for a variety of other useful purposes, some of which are slown in these pictures. Being fireproof, it is very valuable, and its use is constantly being extended in many directions.

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Attic salt, sparkling, refined wit. The
people of Athens and Attica had a
reputation for correct and brilliant use
of language

reputation for correct and brilliant use of language
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by, 3593
Last Supper, painting by, 4701
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Alstraia, 12 lines west of Sydney. 15,000
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Auckland. Largest city and port of North Island, New Zealand, with a magnificent harbour. An important manufacturing centre, it has exports of butter, kauri gum, wool, gold, and coal. 170,000
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Auf wiedersehen, German for Till we meet again
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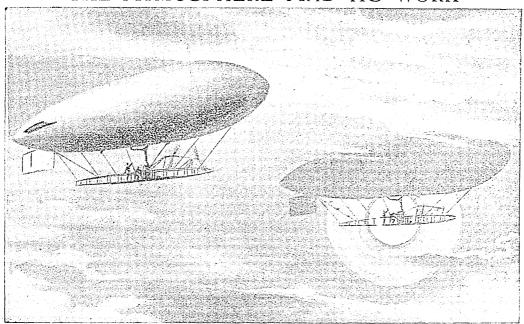
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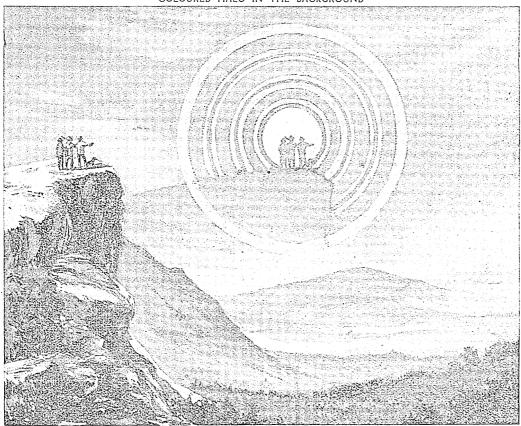
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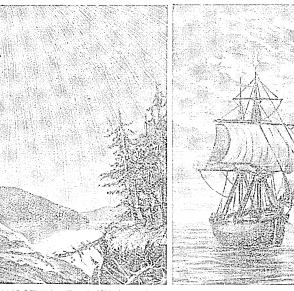


THE ANTHELION--THE SHADOW OF AN AIRSHIP THROWN ON TO A BANK OF CLOUD, WITH A COLOURED HALO IN THE BACKGROUND



THE CIRCLE OF ULLOA—SHADOWS OF FIGURES ON THE MOUNTAIN MIST, WITH COLOURED RINGS SURROUNDING THEM

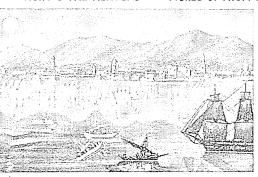
#### RARE AND CURIOUS HAPPENINGS IN THE



SHOOTING STARS THAT SWEEP ST. ELMO'S FIRE-ELECTRICITY ACROSS THE HEAVENS PICKED UP FROM THE ATMOSPHERE



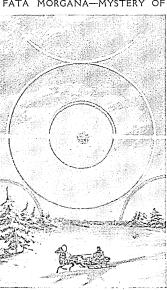
A RAINBOW IN THE SPRAY OF A WATERFALL



FATA MORGANA-MYSTERY OF A REFLECTION



A BALL OF LIGHTNING



THE SUN'S HALOS



A HALO OF ELECTRICITY 7118

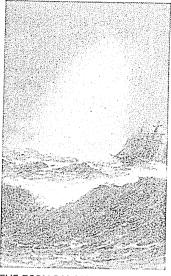


THE HAZE ROUND THE MOON

# MARVELLOUS PAGEANT OF EARTH, AIR, & SEA



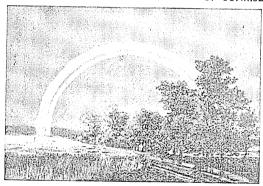
THE LUNAR HALO—COLOURED CIRCLES ROUND THE MOON



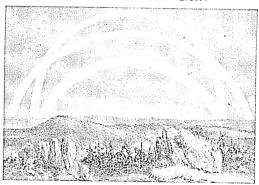
THE ZODIACAL LIGHT, A MYSTERY OF SUNRISE AND SUNSET



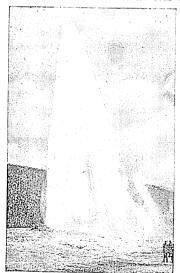
RAINBOW MADE BY THE MOON'S LIGHT



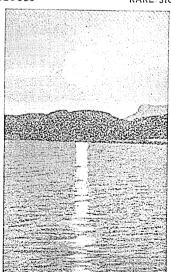
THE RAINBOW IN THE CLOUDS



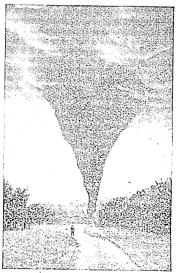
RARE SIGHT OF A TRIPLE RAINBOW



A GEYSER SPOUTING



THE MIDNIGHT SUN



THE BEGINNING OF A CYCLONE

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Bahia Blanca. Port of Argentina exporting much grain and wool. 50,000
Bahrein Islands. Group of British islands in the Persian Gulf, with a pearl fishery employing about 1000 boats in the season. 110,000: see page 2867
Baikal, Lake. Sixth largest lake in the world, in East Siberia. 13,200 square miles in extent, it is 385 miles long and from 20 to 50 miles broad, and over 300 streams flow into it. It is frozen from the beginning of January to the end of May, but abounds in fish, notably sturgeon and herring. Seals are found in it former railway-ferry, 6017
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Latvia, Lithuania, Germany, and
Denmark. 170,000 square miles in
extent, it contains the Gulfs of Finland
and Bothnia, both of which are frozen
in winter. 200 rivers flow into it. The
chief islands are Gothland and Oland,
both belonging to Sweden, the Danish
islands of Zealand, Fünen, and
Bornholm and the Asland archinelago.

chief islands are Gothland and Oland, both belonging to Sweden, the Danish islands of Zealand, Fünen, and Bornholm, and the Aaland archiplelago; ports include Abo, Helsingfors, Petrograd, Reval, Riga, Libau, Memel, Königsberg, Danzig, Stettin, Lübeck, Kiel, Copenhagen, Malmö, Stockholm, and Gefle
Baltimore. Important - American Atlantic port on a branch of Chesapeake Bay, in Maryland. Shipbuilding and canning industries are actively carried on, while there are manufactures of textiles, leather, flour, fertilisers, and tobacco. The Roman Catholic cathedral and the John Hopkins University are the most important buildings. 750,000
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240,000
Bangkok. Capital and port of Siam, on the Menam. Built largely on canals, it has been rapidly modernised and does a great trade in rice, teak, and ivory. 550,000
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Bann. Largest river of northern Ireland, rising in the Mourne Mountains

Largest river of northern

page 4766
Bann. Largest river of northern Ireland, rising in the Mourne Mountains and flowing through County Down, Lough Neagh, and County London-derry into the Atlantic. 90 miles Banner, rank denoted by size, 5246
Bannockburn, battle of. Famous victory of the Scots under Robert Bruce over the English army collected by Edward II to raise the siege of Stirling. By means of camouflaged pits and a feint by camp-followers, the Scots were able to defeat the more numerous English army, 599, 952
Banquo, in Shakespeare's Macbeth, 6166
Bantam fowl, picture, 4253
Banting, Dr., insulin discovered, 3176
Banting, Dr., insulin discovered, 3176
Bantus, Negro stock of many races inhabiting Africa south of the Cameroons and Lake Albert Nyanza, but all speak-

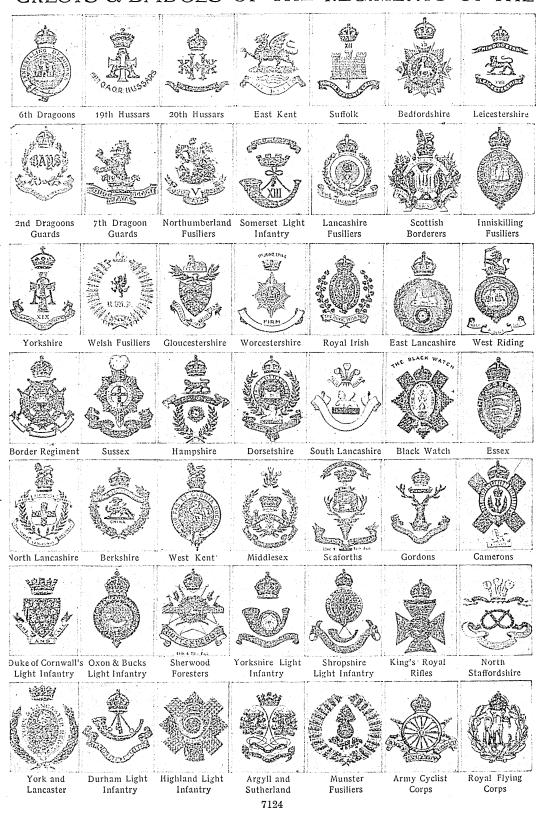
habiting Africa south of the Cameroons and Lake Albert Nyanza, but all speaking dialects of one mother-tongue. They are superior in culture to the true Negro, but far inferior to the Negroid Sudanese. The Zulus are typical Bantus, 3314 conflict with Boer farmers, 3184 woman making bread, 3192
Banyan tree, member of Fig family, 1936, 2372, 2568, 3051
huge specimen, 3051
Baobab tree, related to mallow, 3052
South African specimen, 3057
Baptista, in Shakespeare's play The Taming of the Shrew, 6044

# BADGES OF THE ARMY AND NAVY

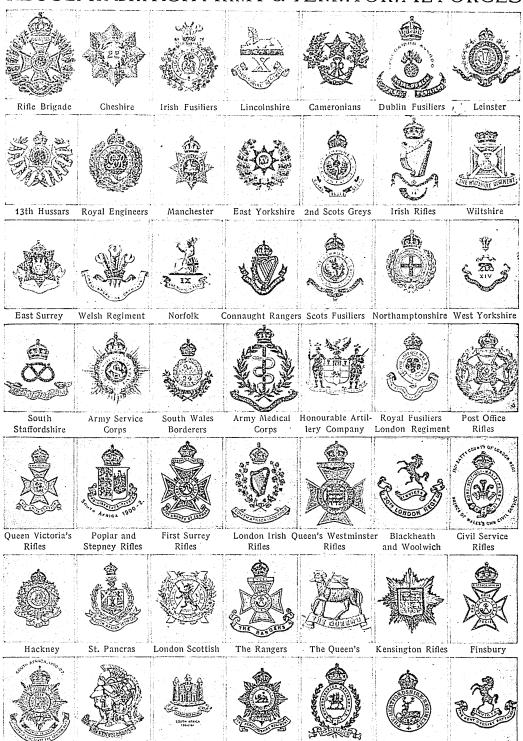
in the Days of the Great War



#### CRESTS & BADGES OF THE REGIMENTS OF THE



# REGULAR BRITISH ARMY & TERRITORIAL FORCES

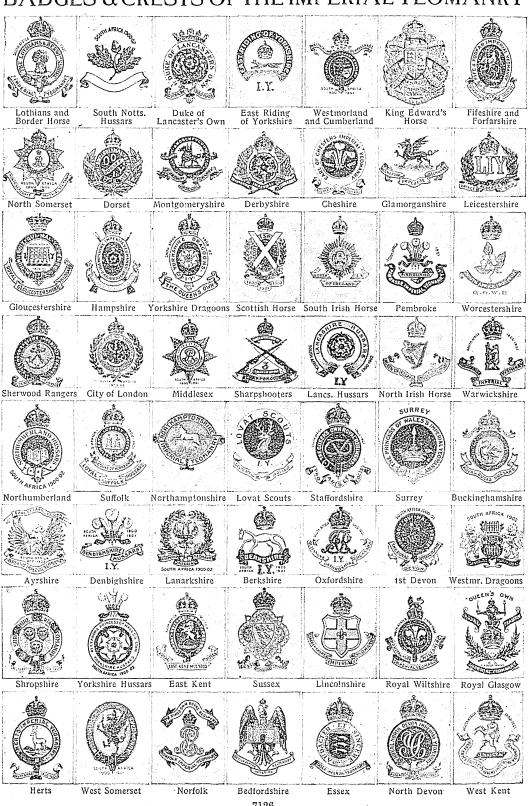


London Risle Brigade Artists Risles Cambridgeshire Herefordshire Monmouthshire Hertfordshire Kent Cyclists

The middle badge on this page, that of the Army Medical Corps, concludes the Regular Army series: those following are all

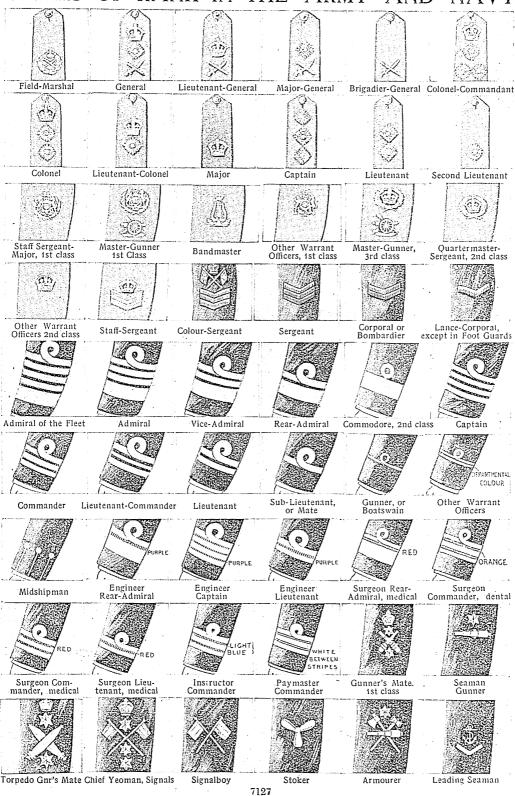
Territorials. This fine series is issued by permission of Messrs. Gale and Polden, who publish two splendid sheets in full colour

#### BADGES & CRESTS OF THE IMPERIAL YEOMANRY

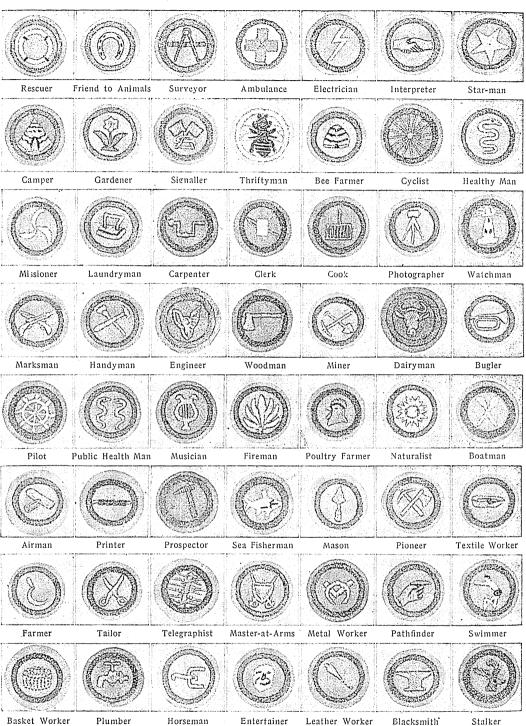


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# MARKS OF RANK IN THE ARMY AND NAVY

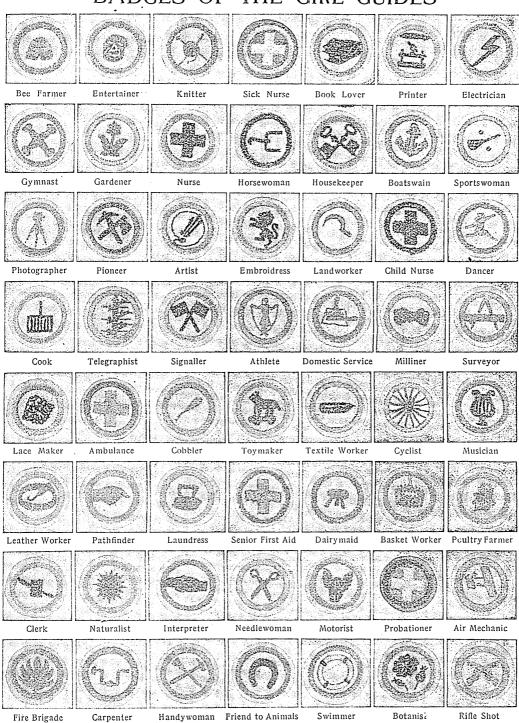


#### BADGES OF THE BOY SCOUTS



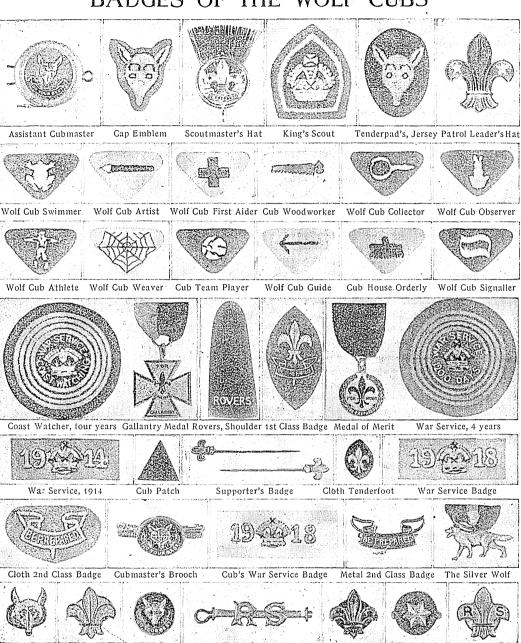
The fifty-six badges on this page are the badges of the Boy Scouts. All these badges, except those of the Thriftyman and the Ambulance-man, are worked on a brown background, with a green circle and a red or white design. Thriftyman's badge has a white circle, a black bee, and a yellow background. The Ambulance-man's has a red cross, green circle, and a white ground. Boy Scouts are from 11 to 18 years of age, and their motto is, "Be Prepared." Sea Scouts are a branch of the Boy Scouts' Association, and come under the same scheme as the Boy Scouts.

#### BADGES OF THE GIRL GUIDES



The fifty-six badges on this page are the badges of the Girl Guides. The Guides have two sections, junior and senior. Senior badges have a blue design surrounded by a red ring, worked on a white ground. Junior Badges have a blue design with a blue ring, worked on a white ground. The Sick Nurse has a white cross, white circle, and red ground. The Nurse has a green cross, red circle, and white ground. The Child Nurse has a green cross, blue circle, and white ground. The Ambulance badge has red cross, green circle, and white ground. The Senior First Aid has a red cross, purple circle, and white ground. The Probationer has a white cross, purple circle, and red ground

#### BADGES OF THE WOLF CUBS







Rover Scout's Badge











Assistant

Cub Star

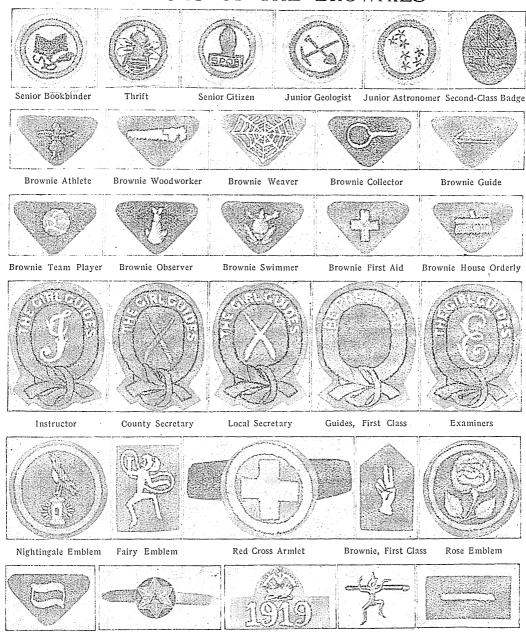
Five Years' Service Star

Assistant Cubmaster's Brooch

Assistant Cub- Scoutmaster's Cub Tenderpad's master's Badge Badge Badge

Wolf Cubs are junior Boy Scouts from 8 to 12 years old. Rovers are senior Scouts over 15. Boy Scouts rendered very valuable service during the war at coast watching, despatch carrying, and so on, for which badges have been awarded, a fresh ring being added for each year's service. The Silver Wolf is only awarded to King's Scouts or King's Sea Scouts, and a very high standard is demanded. Oblong War Service badges are embroidered in yellow on red for Scouts, and red on yellow for Wolf Cubs. 1914 signifies 28 days' service, and 1918 for 50 days' service. The Scoutmaster's hat badge has a green plume; the Commissioner has a similar badge, but with a purple plume.

## BADGES OF THE BROWNIES



Brownie Recruit Badge Brownie, Second Class Five Years Service War Service Brownie Signaller



Brown Owl's Brownie Brooch Senior Tenderfoot Guide Tenderfoot Senior Tenderfoot Captain 1 Year's Service Star Lieutenant

These thirty-eight badges and emblems are those of the Brownies. The Brownies are junior Girl Guides under the age of eleven. A Brownie pack consists of not less than two sixes. Each six has an emblem of its own, such as a fairy. The Brownie first-class badge shows the Brownie salute with two fingers extended, as a reminder of the Brownie's two promises, which are, first, to be loyal to God and the King, and, second, to try to help other people, especially those at home. The Brownie's motto is, "Lend a Hand."

Baptist Missionary Society, 1138 Baptist Missionary Society, 1138
Barabhas, in Bible, 4706
Barak, defeats Sisera, 1365
Barbados. British West Indian island; area, 166 square miles; population, 172,000; capital, Bridgetown. Settled in 1625, it produces sugar, cotton, tobacco, arrowroot and indigo, 3423
university, college, 3423

university college, 3423 flag in colour, 2407 monument where first Englishman monument wl landed, 3425

landed, 3425 shopping scene, 3433 Barbara, St., Greek maiden, who was taken before the chief magistrate by her father for becoming a Christian and refusing to marry a pagan. She was tortured and beheaded, and, according to legend, her father and the magistrate were killed by lightning, in token of which St. Barbara is invoked against lightning. She is also

invoked against lightning. She is also the patron of lirearms lovely carving at Nuremberg, 4644
Barbara Frietchie, picture to poem, 4681
Barbarossa, Frederick, German emperor, crusader, and hero; drowned in a river of Asia Minor 1189; reigned from 1152: see page 4294
Barbary ape, Gibraltar its last home in Europe, 165 with young one, 162
Barbary nirates, who were they? 5371

Barbary pirates, who were they? 5371
Barbary sheep, wild African species, 1285, 1282
Barbauld, Anna Letitia: for poem see Poetry Index
Barbacue, wooden or iron frame on which the property of the property of

which sheep or oxen were roasted whole; also the animal when thus cooked. The word is of Haitian origin Barbel, member of Carp family, 4979 Barber of Seville, play by Beaumarchais, 4457

Barberry, member of genus Berberis,

6491 source of wheat rust, 1578 stamen sensitive to touch, 586 flower in colour, 4907 leaf affected by rust, 1573 wild fruit, in colour, 3665 Barber's pole, what does it mean? 5251 Barbet, bird, habits and food, 3258 like faced, picture in colour, 2144

blue-faced, picture in colour, 3144 groove-billed, in colour, 3261

Barbizon, French landscape painters' resort. 2790
Barcarolle, boatman's song also music written in style of gondolier's song Barcelona. Chief Spanish industrial written in style of gondoner's song Barcelona. Chief Spanish industrial centre and Mediterranean port, capital of Catalonia. A fine, modern place, it manufactures silks, woollens, cottons, lace, and hardware, and exports fruit, wine, silk, salt, and oil. There are a university and a 13th-century cathedral. 725,000 architecture of cathedral, 5994 siege. 5411

siege, 5411 Spanish industrial city, 5278

Pictures of Barcelona donkey cart in streets, 5275 porter resting, 5275 selling goats' milk, 5275 the Rambla, main street, 5282 Barcelona nuts, fruit of Spanish hazel,

Bardsey. Small island off Braich-y-Pwll,

Bardsey. Small island off Braich-y-Pwll, Carnarvonshire. (300)
Bareilly. Indian agricultural centre in the United Provinces. 130,000
Bare-eyed cockatoo, bird, 3499
Barents, William, Dutch Arctic ex-plorer, discoverer of Spitsbergen; died in the Arctic 1597: see page 4601
writing diary in Nova Zembla, 4599
Barra use on canals. 4866

writing diary in Nova Zembla, 4599
Barge, use on canals, 4866
with load of Australian wool, 806
Barham, Richard Harris, English poet;
born Canterbury 1788; died London
1845; author of the Ingoldsby Legends,
3956; for poems see Poetry Index
portrait, 3953
Bari Truling scapput on the Adviction

Bari. Italian seaport on the Adriatic, with an important fishing industry and manufactures of furniture and chemi-

It has a cathedral and a Norman Baron's Last Banquet, picture to poem, cals. cars. 1t has a canner a and a Norman castle. 135,000: see page 4914
Baring-Gould, Sabine, English novelist and writer of hymns; born Exeter 1834; died Lew-Trenchard, Devonshire, 1924: see page 1760 for poems see Poetry Index

Barium, produces green flame, 3885 Barium platino-cyanide, use in X-ray work, 2463

WORK, 2403
Bark, why does it grow on a tree? 5252
Bark, Peruvian, plant in colour, 2687
Barker, Collet, Australian explorer; born 1784; killed by savvages 1831; discovered the mouth of the Murray river, 6068

Barlass, Kate, heroic attempt to save king, story, 6952 Barletta. Italian scaport on the Adriatic, with a 12th-century cathe-dral. 45,000 Barley, story of, 1698

alcohol produced from, 2429 ancient Egyptians cultivated, 427 northern limit in Canada, 2082 number of grains to bushel, 1698. origin, 1435 use for malting, 1698

cereal grown for food, 1696 grain seen through microscope, 1910 meadow, grass, 3305 wall, 582

Barley-sugar, how to make, 752

Barley-sugar, how to make, 752 what it is, 5108
Barmen. Textile manufacturing town in Rhenish Prussia. It is connected with Elberfeld by a hanging railway. 170,000: see page 4425
Barmouth. Watering-place at the mouth of the Mawddach, Merioneth-shire, near Cader Idris. (4000)
Barnabas, St., Levite of Cyprus who is mentioned in the Acts of the Apostles. He is said to have become first bishop of Milan and to have suffered martyrof Milan and to have suffered martyr dom about 53. An epistle attributed to him is still in existence

guides Paul to Peter, 6053
work at Antioch, 6298
work in spreading Christianity, 6537
Barnacle, crustacean that fastens on ships, 5480
inside its shell, 5479

plumes seen through microscope, 1914 shell, 6580

Barnard, George, American sculptor; born Belleforte, Pennsylvania, 1863: see page 4896

Two Natures, sculpture, 5013
Barnardo, Dr., British philanthropist,
portrait, 1827

portrait, 1827
Barnes, William, English poet who wrote
in Dorsetshire dialect; born Bagber,
Dorsetshire, 1801; died Came, Dorsetshire, 1886: see page 3954
for poems see Poetry Index

for poems see Poetry Index
Barnesmore Gap, Donegal, 3069
Barnoin, Henry, Boats at Concarneau,
painting, 3774
Barn owl, bird of prey, in colour, 2768
Australian, 3501
young, 2639
Barnsley, Coal-mining and manufacturing centre in the West Ridding of
Verticality 16 wiles poorthe Shoffedd

Yorkshire, 16 miles north of Sheffield.

Barnstaple. Ancient market town and port in North Devon, on the Taw.

14,500
Baroda. Indian city in the Bombay Presidency, trading in flax, grain, cotton, and tobacco. 100,000
Barogram, what it is, 6720
Barograph, what it is, 8720
Barometer, height of mountain can be measured by. 5199
how to make, with picture, 2607
one a boy can make, with pictures, 6421
principle of working, 5199
weight of the air measured by. 183

weight of the air measured by, 183 aneroid barometer, 5197 height of mountain measured, 5199 Baron, coat-of-arms, in colour, 4987

coronet, 4986

Baronet, coat-of-arms, in colour, 4987
helmet, 4986

Baroscope, for indicating variations in the density of the air

Barothermograph, for recording at the same time atmospheric pressure and

temperature
Barranquilla. Port and commercial
centre in Colombia, near the mouth of
the Magdalena. 65,900 picture, 7007

Barr, Matthias: for poems see Poetry

Barr, Matthias: for poems see Poetry Index Index Barras, French revolutionist, 4371 Barren brome, grass, 3308 Barren strawberry, member of genus Potentilla. 6492 Barrias, Felix Joseph, Esther pleading for her people, painting, 3224 Barrie, Sir James, Scottish author and writer of plays, creator of Peter Pan; born Kirriemuir, Forfarshire, 1860: see pages 406, 3712 address on courage, 2250

address on courage, 2359 portrait, 399

Barrister, professional duties of, 4777 Barrow, Sir John, promotes Arctic ex-ploration, 4604

Barrow, grave-mound made by early Britons, 462 Barrow-in-Furness. Lancashire indus-trial centre and port, with shipbuilding, engineering, and iron-founding works. Near it are the ruins of Furness Abbey.

Near it are the ruins of Furness Abbey.
75,000: see page 341
Barrow, River. Irish river rising in Slieve
Bloom and flowing into Waterford
Harbour. It drains 3500 square miles
in Leinster and Munster. 100 miles
Barry, Sir Charles, English architect;
born Westminster 1795; died Claphan
1860; designed Trafalgar Square and
Houses of Parliament, 4225, 4228
portrait, 4225

portrait, 4225

Bottses of Farlament, 4225, 4228
Barry, Sir John Wolfe, Tower Bridge
planned by, 4229
portrait, 4225
Barry. Port in Glamorganshire, 7 miles
south-west of Cardiff, with fine docks
and a large export of coal. 40,000
Bartholomé, Paul Albert, French sculptor and painter; born Thiverval, near
Paris, 1848: see page 4648
monument to the dead, 5136
Bartholomew, St., apostle of India and
Arabia, according to tradition, and
said to have been martyred by an
Armenian prince on the shores of the
Caspian. He is probably the Nathaniel
mentioned by St. John
what is known of him, 6791
his portrait, 6787

his portrait, 6787 Bartica Grove, British Guiana, 3434

Bartlett, Robert, Newfoundland ice-master, Peary's ship's captain on his voyage to find the North Pole, 6443

Bartoli, Taddeo, early Sienese painter; lived about 1863-1422; painted frescoes in Siena cathedral, 568, 572
Bartolini, Lorenzo, Charity, sculpture by, 5012

Grief, sculpture, 5008 Bartolommeo, Fra, Florentine painter, a follower of Savonarola; born Savig-nano, Tuscany, 1475; died Florence

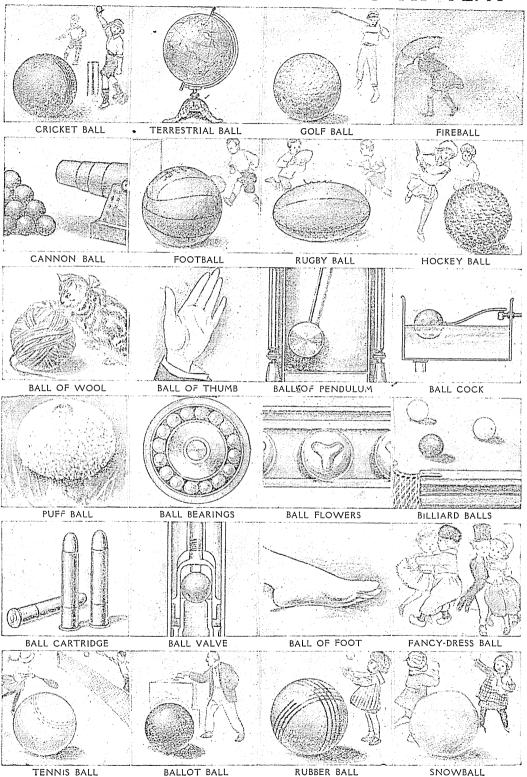
follower of Savonarola; born Savignano, Tuscany, 1475; died Florence 1517: see page 4730
Raphael's friend, 6191
Bartolozzi, F., portrait by Opic, 2175
Bartoluccio, Florentine goldsmith who taught Ghiberti, 4718
Barton-on-Humber, Saxon tower, 5865
Barton-swing aqueduct. Bridge by which

Barton swing aqueduct. Bridge by which the Bridgewater Canal is carried across the Manchester Ship Canal. It can be swung round to allow ships to pass

Swing round to anow sings to pass Bartsia, plant of genus of order Scro-phularineae, 6493 Alpine, flower in colour, 5642 red, flower in colour, 5644 Barye, Antoine Louis, greatest French sculptor of animals; born Paris 1795;

died 1875: see page 4648
Arab killing lion, sculpture, 4652
lion and serpent, sculpture. 4656

# BALLS AT WORK AND BALLS AT PLAY



NNIS BALL BALLOT BALL RUBBER BALL SNOWB,
TWENTY-FOUR SORTS OF BALLS AND THE USES THEY ARE PUT TO
7133

Barytes, sulphate of barium, 1304
Basalt, importance of, 517
columns, Giant's Causeway, 2007
Basel: see Basle
Bashkirs, Turki race of the Northern
Mongolic family. Characterised by
large round but short heads, they in-

habit the Orenburg and Perm districts of Russia

of Russia

Basil the Great, St., Cappadocian who

studied philosophy at Constantinople
and Athens and became a hermit. He
was made Archbishop of Caesarea in

370 and died in 379

painting by El Greco, 1311

Basil, wild, flower, in colour, 4420

Basilica, meaning of word, 5504

plan of early basilican churches, 5739

Basilisk, harmless lizard, 4495, 4492 Basilisk, harmless lizard, 4495, 4492
Basil thyme, member of genus Calamintha, 6496
member of Labiate family, 5022

member of Labiate family, 5022 in colour, 5143
Basing House, Inigo Jones fortifies Hampshire mansion, 6241
Basket, how to make a fern basket, with picture, 2361
how to make a straw basket, with picture, 1250
Red Indian craftsmanship, 198
made from esparto grass, 5273
picture-story, 4259
Basking shark, harmless sea-monster, 5227, 5229

5227, 5229 Basle, or Basel. Old Swiss city on the Rhine, with a famous university and an 11th-century minster. A great railway centre, it 140,000 it manufactures textiles.

Erasmus at, 4956 Holbein's life at, 6673 Holbein's won museum, 1194 wonderful drawing in

museum, 1194
Swiss railway centre, 4673
the Spalentor, 4667
Basques, small but virile race, dwelling at the western end of the Pyrenees.
They are believed to belong to the Hamitic Berber race, and are survivors

of a people that originally came from North Africa, 5272 Basra. Port of Mesopotamia, on the Shatt-el-Arab. 85,000: see page 6262

old peasants, 5277 on the Shatt-el-Arab, 6272

on the Shatt-el-Arab, 6272 typical scenes, 6273 Bass, George, English navigator; born Asworthy, near Sleaford; died probably South America about 1812; discovered Bass Strait, 2382 Bass, fish's habits and food, 5101, 5105 Bassanio, in Shakespeare's Merchant of

Bassanio, in Shakespeare's Merchant of Venice, 6041
Bassarieyon, American animal, 792
Bassenthwaite, Lake. Lake in the Lake District of Cumberland. It is four miles long and three-quarters of a mile wide Basset-hound, 667
Bass Strait. Strait dividing Tasmania from the mainland of Australia

Baste the bear, game, 3476
Bastia. Chief commercial town of
Corsica, with a good harbour and a
large export trade. It has a cathedral,
a citadel, and some manufactures.

Bastien-Lepage, Jules, French painter of rural life; born Damvillers, near Verdum 1848; died Paris 1884; see Verdun 184 page 2928

haymakers at rest, painting, 2929 old beggar-man, painting, 2927 Bastille, Paris's old prison-fortress, 3922 storming of, 4043 what was the Bastille? 4387 Basuto, native of the Transvaal, 3188

Basuto, native of the Transvaal, 3188
Basutoland. South African native territory, under British administration;
area 11,700 square miles; population
405,000; capital Maseru
general description, 3312
Mout aux Sources, 3194
Bat, story of, 291
where do bats go in the daytime? 4890
on tree. 291 on tree, 291 various species, 290

Batalha, chapel of Portuguese monastery, 5413
Bat and ball game, 14th-century manuscript drawing, 1923
Batavia. Capital of Java and the Dutch East Indies, exporting coffee, rice, sugar, sago, tin, bird's nests, to bacco, tea, and timber. 140,000: see pages 5530, 5532
fine wharf, 5542
Batavian Republic, formed by the French, 5530

French, 5530

Batavians, bra Dutch, 5526 brave ancestors of the

Bates, David: poem see Poetry Index Bates, Harry, English sculptor; born Stevenage, Hertfordshire, 1850; died London 1899: see page 4768

Sculpture by Harry Bates Homer singing his immortal lays, 4656 hounds in leash, 4649 Pandora's box, 4769

Pantiona's Box, 4769
Psyche and Zephyr, 5579
Socrates, 1162, 1163
Bates, Henry Watter, Amazonian
alligators described by, 4491
experience with an ant-eater, 2273
Bates's monhotia, beetle in colour facing 6327
Bath, houses

designed by Wood Bath, houses designed by Wood brothers, 6471
Roman baths built like palaces, 5504
Romans founded city, 466
abbey, west front, 1718
arms, in colour, 4900
Bathing, things to remember when bathing, 3103
Rathing menhing how to make a toy

bathing machine, how to make a toy bathing machine, with picture, 4709 Bathsheba, David's wife, 1983 Bath-stone quarry, 5850 Bathurst. Capital of British Gambia, West Africa, exporting rice, cotton, tobacco, fruit, wax, gum, and hides.

Bathurst, Australia's first inland town, 6064

Bathurst, Australia's lirst inland town, 6064
Battel, Andrew, English traveller, first British visitor to the Congo; born in Essex about 1565; died Leigh, Essex: see page 2997
Battersea Bridge, Whistler's famous painting, 2930
Battersea Park, lake covered with pond weed, 3179
Battery: see Electric battery
Battery, secondary or storage: see Accumulator
Battle Abbey. Monastery founded by William the Conqueror in 1067 near the scene of the Battle of Hastings. It is now a private residence, but much of the old buildings remains
Battledore, how to mend, 2488
Battledore and shuttlecock, game, 3108
Battle of the Baltie, poem by Thomas Campbell, 1262

campbell, 1262
picture to poem, 3199
Battle of the Frogs and Mice, Greek
parody on war, 5181
Battle of the Nations: see Leipzig
Batula, name given to benzoin, 2988
Ratum, Georgian, Black, See poet as Batum. Georgian Black Sea port, exporting petroleum from Baku. 50,000:

see page 6108 Baucis, story of Philemon and Baucis, 5086

Baudry, Paul Jacques, French figure painter; born La Roche-sur-Yonne, Vendee, 1828; died Paris 1886; see

page 2930

Bauldour the Beautiful, story and picture, 6564

Bauxite, source of aluminium, 1230

Bavaria. Largest and most important German State after Prussia, including the Deletinate or the left hands of the German State after Prussia, including the Palatinate on the left bank of the Rhine. Bavaria has an area of 30,000 square miles, a little less than that of Scotland, and a population of 6,900.000; nearly a third of the country is covered with forests, but the soil is fertile and agriculture very important. Iron is mined extensively, and there are considerable manufactures. The capital is Munich (640,000), with splendid art

collections; other important places are Nuremberg, a great toy-making centre; Augsburg, formerly a free city; Regens-burg, Fürth, Bamberg, Würzburg, burg, Fürth, Bamberg, Würzburg, Baireuth, and Ingolstadt, with Kaisers-lautern, Landau, and Speyer in the Palatinate

Palatinate
Baxter, George, English engraver,
mezzotinter, and painter; born Lewes
1804; died London 1807; maker of the
Baxter prints, 3862, 3855
Baxter, Richard: poem, see PoetryIndex
Bayard, Chevalier de, French national
hero, famous for his courage and
chivalry; born near Grenoble about
1475; killed in Italy in 1524
Bayazid II, Mosque of, in Constantinople, 5035
Bayeux. Ancient city of Normandy.

Bayeux. Ancient city of Normandy, France, with a museum containing the France, with a museum containing the Bayeux Tapestry. Its cathedral was rebuilt by William the Conqueror in 1077, but the greater part dates from the 13th century. (8000)

Bayeux Tapestry, the most famous embroiders in the world, 6789

Halley's counte pictured in, 3614
oldest picture of English history, 708 in colour, 709
Bayham Abbey, Tonbridge, 964
Bayle, Pierre, French philosophic writer; born Carlat, near Foix, 1647; died Rotterdam 1706; see page 4457
Bayly, Thomas Haines, English writer of songs; born Bath 1797; died Cheltenham 1839; see 1264, 1261 for poems see Poetry Index
Bayonne. Ancient city and scaport on

Bayonne. Ancient city and scaport on the Adour, France, with a fine Gothic cathedral. 30,000 splendid cathedral, 5990 B.C., before Christ. The years before Christ are reckoned backwards, so that the year 1 B.C. was one year before the birth of Christ, and the year 200 B.C. was 200 years before the birth of was 200 Christ

Christ
B.C.L. stands for Bachelor of Civil Law
B.D. stands for Bachelor of Divinity
Beachy Head. Perpendicular chalk
cliff over 500 feet high on the Sussex
coast, at the eastern end of the South
Downs. Off it a naval battle was
fought in 1690 by the English and
Dutch against the French

view of cliffs, 1594 Beaconsfield, Earl of: Bead, Venice makes beads, 4915 what to do with beads, with picture,

Bead belt, how to make, with picture, Beadlet anemone, in colour, 1554, 1555,

1556, 6697 Bead loom, how to make, with picture, 5067

Beagle, hound, 670 Beaked bacchus weevil, in colour, 6335 Beaked nais, worm, 6827 Bean, food value, 2432 varieties, 2431 broad, 2438 butter, 2439

butter, 2430
See also Soya bean, and so on
Bear, story of the, 785
Polish forests harbour, 6136
cave man's drawing, 193
cave bear of Pleistocene Age, 1881
various species, 785-90
See also Polar bear; Sloth bear;
and so on

and so on Bearberry, common, flower in colour,

5041 wild fruit, in colour, 3666 Bearded lichen, flowerless plant, 3408 Bearded reedling, bird, in colour, 2768 Beardmore Glacier, Antarctic ice barrier,

Beardmore Glacier, Antarctic ice barrier, 6544, 6560
Bearing-rein, why do people use it? 5983
Bear in the Well, story, 3494
Bear Man, The. story, 3248
Beating the Bounds, old English custom for maintaining parish boundaries.
These were visited in May every year by a procession of parish officials, the

Participation of the second of

boundary marks being beaten by boys, and the custom still survives in places Beatrice, Dante's ideal woman, 4582 with Dante, sculpture, 5012

Beatrice, in Shakespeare's Much Ado About Nothing, 6046

Beatrice d'Este, portrait by Leonardo, 694, 689

Reatry Parid Forl British admired

Beatty, David, Earl, British admiral of the ficet; born 1871: see page 1712 portrait, 1707

Beatty, David, Earl, British admiral of the fleet; born 1871; see page 1712 portrait, 1707
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Bengal. Great Indian agricultural province; area, 84,000 square miles; population 46,000,000; capital Calcutta (1,300,000). Lying mainly in the fertile plain of the Ganges and Brahmaputra, it produces immense crops of barley, wheat, pulse, jute, oil-seeds, and especially rice, while its tea-gardens cover 150,000 acres. Jute, silk, and cotton are manufactured, and coal, iron, and copper mined. Dacca (110,000), Chittagong, and Murshidabad are important towns

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Berbers. Virile race of the Northern
Hamitic branch of the Mediterranean
division of the Caucasic peoples. They
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Area 725 square miles; population 295,000 Berlin. Capital of Prussia and Germany, Berlin. Capital of Prussia and Germany, and second largest city in Europe, on the Spree. It is almost entirely a modern place, its growth having been especially rapid since the creation of the German Empire, and has a great variety of manufactures. It is the chief German commercial and railway centre, and has also a famous university. The city is well laid out, with many fine buildings and statues, and there are splendid museums and art collections. 3,850,000: see page 4427

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Beyrout. Capital and chief port of
Syria, exporting silk, oil, wine gauns,

Bewill. Watering-place in east Sussex, five miles south-west of Hastings. 21,000

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33 miles
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Bideford. Port of north Devon, on the
Torridge estuary. It was the birthplace
of Sir Richard Grenville and the scene
of much of Kingsley's Westward Ho

(O500)

of Sir Richard Grenville and the scene of much of Kingsley's Westward Ho' (9500) lovely old bridge, 6240
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signed by the master it forms a receipt for the goods
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# PROVERBS OF THE BIBLE



As cold water is to a thirsty soul, so is good news from a far country—*Prov. xxv. 25* 



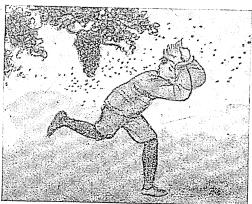
Whoso diggeth a pit shall fall therein — Proverbs xxvi. 27



Whatsoever thy hand findeth to do, do it with thy might—Ecclesiastes ix. 10



A righteous man regardeth the life of his beast — Proverbs xii. 10



Every fool will be meddling
—Proverbs xx. 3



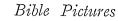
A merry heart maketh a cheer-ful countenance—Proverbs xv. 13



A wise son maketh a glad father—Proverbs x. 1
7139

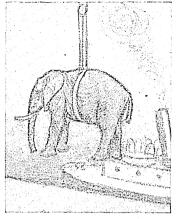


Pride goeth before destruction and a haughty spirit before a fall—Prov. xvi. 18

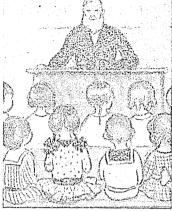




He that toucheth pitch shall be defiled therewith—Ecclesiastes xiii. I



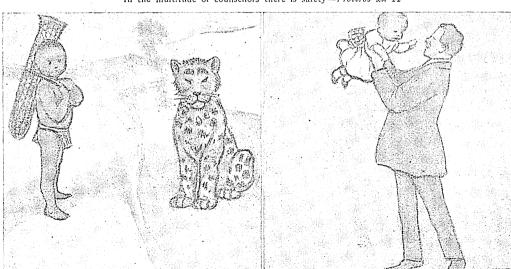
A threefold cord is not quickly broken — Ecclesiastes iv. 12



He that hath ears to hear, let him hear—Mark iv. 9



In the multitude of counsellors there is safety—Proverbs xi. 14



Can the Ethiopian change his skin or the leopard his spots?—Jeremiah xiii. 23

Perfect love casteth out fear — 1 John iv. 18



Even a child is known by his doings-Proverbs xx. 11



Love not sleep, lest thou come to poverty-Proverbs xx. 13



Hope deferred maketh the heart sick-Proverbs xiii. 12



Train up a child in the way he should go-Proverbs axii. 6



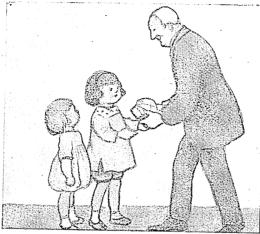
Where no wood is, the fire goeth out—Proverbs xxvi. 20



Whoso keepeth the fig tree shall eat the fruit thereof—Proverbs xxvii. 18 7144



The wind bloweth where it listeth — John iii. 8



It is more blessed to give than to receive—Acts xx. 35



The hand of the diligent maketh rich-Proverbs x. 4



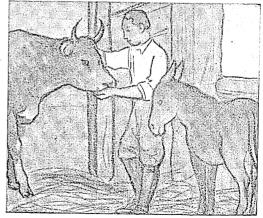
Let him that thinketh he standeth take heed lest he fall—1 Corinthians x. 21

Whatsoever a man soweth, that shall he also reap—Galatians vi. 7

The wicked flee when no man pursueth—Proverbs axviii. 1



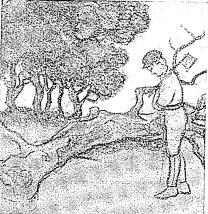
The sleep of a labouring man is sweet—Ecclesiastes v. 12



The ox knoweth his owner and the ass his master's crib—Isaiah i. 3



Of the making of many books there is no end — Ecclesiastes xii. 12



In the place where the tree falleth, there shall it be—Ecclesiasles xi. 3



Unto everyone that hath shall be given—Matthew xxv. 29



A soft answer turneth away wrath—Proverbs xv. 1



Evil communications corrupt good manners—1 Corinthians xv. 33



Wheresoever the carcase is, there will the vultures be—Matthew xxiv. 28



The labourer is worthy of his hire—Luke x. 7



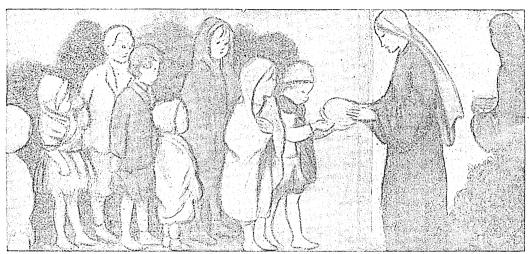
It is as sport to a fool to do mischief—Proverbs x. 23



He that tilleth the land shall be satisfied with bread—Proverbs xii. 11



A merry heart doeth good like a medicine—Proverbs xvii. 22



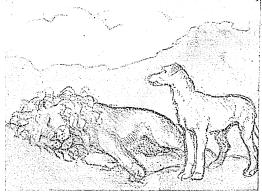
He that hath mercy on the poor, happy is he-Proverbs xiv. 21



if the blind lead the blind, both shall fall into the ditch...Mailhew xv. 14



Be wise as serpents and harmless as doves—Matthew x. 16



A living dog is better than a dead lion-Ecclesiastes ix. 4



Fools make a mock at sin-Proverbs xiv. 9



Where your treasure is, there will your heart be also—Matthew vi. 21



Go to the ant, thou sluggard; consider her ways and be wise—Proverbs vi. 6



As the crackling of thorns under a pot, so is the laughter of a fool Ecclesiastes vii. 6



Seest thou a man diligent in his business? He shall stand before kings

Proverbs xxii. 29



Render unto Caesar the things which are Caesar's — Matthew xxii. 21

Bird with the Golden Wings, story, 1396

Bird with the Golden Wings, story, 1396
Birkeland-Eyde are process, nitrates
made from the air, 856
Birkenhead. Important port in
Cheshire, on the Mersey, opposite
Liverpool. It has over 170 acres of
docks and about 10 miles of quays;
shipbuilding is important, and there is
a great transit trade. 150,000
Birkenhead, Wreck of the, story, 5342
Birmingham. Largest English city
after London, covering 68 square miles.
The centre of the Midland iron steel,
and coal trades, it has a great variety of
manufactures, especially of hardware;
the machinery, rubber, motor, chocomanufactures, especially of hardware; the machinery, rubber, motor, chocolate, glass, and jewellery industries are all important. Here Priestley, Boulton, Watt, Murdock, and Baskerville the printer lived and worked. The church of St. Philip became the cathedral in 1904, and there are also a Roman Catholic cathedral and a university. 920,000

920,000 manufacturing centre in Stuart times,

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U.S.A., with steel, iron, and cotton
industries, 190,000
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Bisayans, Malayan nation of Oceanic
Mongol type inhabiting the Philippine
Islands of Mindoro and Mindanao.
They are a people with a curious
temperament and a capacity for doing
the most surprising things at any
moment

moment Biseay, Bay of. Wide bay between Spain and France, notorious for its stormy weather. Here are the ports of Lorient, Nantes, La Rochelle, Rochefort, and Bordeaux in France, and San Sebastian, Bilbao, Gijon, and Santander in

Spain Biscoe, John. English explorer in the Antarctic, 1831-32: see page 6549 Biscornette, the craftsman, who wrought

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Bizerta. French naval station in Tunisia, at the northernmost point of Africa. 30,000 Bizet, Georges, French operatic com-poser; born Bougival near Paris 1838; died Paris 1875

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Björnson, Björnstjerne, Norwegian poet, dramatist, and novelist of peasant life; born Kvikne, Osterdalen, 1832; died 1910: see page 4941
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B.L. or B.LL. stands for Bachelor of Laws
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Black and yellow macaw, bird, 3499
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pression by Henry VIII
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whom 123 were suffocated
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14, 1360, when cold, mist, and hail
caused deaths of many English soldiers
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Blackpool. Most popular Lancashire seaside resort, with splendid sands.
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140,000

acturing town in the Kuhr coalields.
140,000
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and many fine buildings, and was once regarded as the chief centre of culture in South America. 150,000: see pages

and many fine buildings, and was once regarded as the chief centre of culture in South America. 150,000: see pages 7017, 7007

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Bohemia. Formerly an independent kingdom, and later a province of the Austrian Empire, but now the chief division of Czecho-Słovakia. A tableland girdled by mountain ranges, it has immense agricultural and mineral resources and many valuable industries, notably manufactures of linen, woollen goods, and glass. Prague is the capital of Czecho-Słovakia; other important towns are Pilsen, Budweis, and Reichenberg, while Carlsbad. Marienbad, and Teplitz are famous for their mineral springs. The people are mainly Czechs Czecho-Słovakia; beling Bavaria and Czecho-Słovakia in their mineral springs. The people are mainly Czechs Czecho-Słovakia Böhme, Jacob, German mystic author; born Altseidenberg, Silesia, 1575; died Görlitz 1624: see page 4697
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Boiling point, at various temperatures, 3770

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Bois-le-Due. Cathedral city in the south of the Netherlands. 40,000

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Bokhara. Central Asian Moslem State under Russian domination; area 83,000 square miles; capital Bokhara (75,000). Very fertile in places, it produces cotton, silk, wheat, hemp, and tobacco: 6016

Bokhara. Capital of Bokhara, Russian Turkestan, making cottons, silk, hosiery, cutiery, and leather. Here are many mosques and Moslem schools. 75,000

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Bolan Pass. Chief trade highway between Kandahar, Afghanistan, and Quetta, British Baluchistan

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Bolivia. South American inland republics area about 515,000 source miles.

Bolivia. South American inland republic; area about 515,000 square miles; population 2,900,000; capitals La Paz and Sucre. Cut off from Chile and the Pacific by the Western Cordillera, it is peopled mainly by Indians, and is at present backward and undeveloped. The most important part lies on the Andean plateau, where silver, lead, tin, zinc, and copper are mined; the east consists largely of sparsely inhabited jungles and prairies. Bolivia became independent in 1825: see page 7015

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Bologna. One of the largest cities of northern Italy, manufacturing macaroni, sausages, soap, textiles, and glass, A very ancient place, it is surrounded by lofty medieval walls nearly six miles in circumference; it has a hundred churches, a cathedral, and the oldest university in Europe. 215,000 church of San Petronio, 5994

Della Quercia's reliefs in church of San Petronio, 4524

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Bolometer, device for measuring small amounts of radiant heat
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Bombard Second city and port of India

Bombardier beetle, fluid ejected as defence, 6330
Bombay, Second city and port of India, on Bombay Island. It is the distributing centre and cotton market for western India, and has also salt, dyeing, metal and tanning trades. Sixty-two languages are spoken, but two-thirds of the people are Hindus, Near by are the Cave Temple of Elephanta and the Parsee Tower of Silence. 1,200,000
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Portugal cedes to Charles II, 1948, 2811 flags in colour, 2408 harbour, 3560 street scene, 2950 Bon, Cape. One of the northernmost capes of Africa, in Tunis Bona. Algerian cathedral city and port, exporting phosphates, cork, barley, wool, and esparto grass. 45,000 general view, 6760 Bona fides, legal term meaning honest intention. The words are Latin for Good faith

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Bonflis, Adda, Sympathy, sculpture by, 5255
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Bonheur, Rosa, French animal painter; born Bordeaux 1822; died Paris 1899: see page 2790
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Wagon and Horses, painting, 3656
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Bon mot, French phrase meaning a clever or withy remark (literally Good word)
Bonn. Beautiful German Rhine town, birthplace of Beethoven. Here are an ancient five-towered minster and a

word with remark (literally Good word)

Bonn. Beautiful German Rhine town, birthplace of Beethoven. Here are an ancient five-towered minster and a famous university. 90,000: see 4422 Beethoven's birthplace, 148 cathedral, 4433

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Bordighera. Winter resort on the Italian Riviera, with picturesque, winding streets. (5000)
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Paris 1704
believed in church and king, 4457
Boston. Ancient port of Lincolnshire, on the Witham. The church of St. Botolph, one of the largest in England, has a tower, called the Boston Stump, 282 ft. high. 16,500
St. Botolph's church, 1836
Boston. Capital of Massachusetts, U.S.A., and one of the most historic cities in the Union, having been founded in 1630. A famous educational centre, after New York it is the greatest port in the country, with a huge trade in fish, meat, wool, cotton, textiles, and hardware. 800,000
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Bressia. Railway centre in Lombardy, Italy, with manufactures of iron and steel goods, woollens, wine, linen, and silk. Over 2000 years old, it is surrounded by walls and dominated by a castle; it has an ancient cathedral, a magnificent town hall, and many fine churches, some with paintings by Tintoretto and Paolo Veronese. 90,000: see 4913
Breslau. German cathedral and university city on the Oder, and capital of Silesia. A great industrial centre, it makes woollens, linen, cotton, soap, and machinery. 530,000: see 4426 old town-hall, 432
Brest. One of chief French naval ports, in Brittany. It has important fisheries, considerable manufactures, and one of the finest harbours in Europe. 90,000
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Name	Clauntur	Length	
Name	Country	Miles	Yards
Tay	Scotland	2	73
Ohio	U.S.A.	2	
Sydney	Australia	$\bar{2}$	
(being built)			
Sone (Dehri)	India	1	1591
Victoria	Canada	1	1320
Godavari	India	1	1272
Forth	Scotland	1	1005
Missouri	U.S.A.	1	784
Queensborough	U.S.A.	1	740
Williamsburg	U.S.A.	1	676
Mohanadi	India	1	544
Manhattan	U.S.A.	1	520
Izat (Ganges)	India	1	367
Susquehanna	U.S.A.	1	345
Brooklyn	U.S.A.	1	245
Hardinge	India	1	207
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U.S.A., with hardware manufactures. 150,000
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Bridget, St., 5th-century Irish abbess, who was buried at Kildare in the church she had founded, and where, until 1220, a fire was kept burning continually in her memory. She is the patroness of Ireland Bridgetown. Capital of Barbados, on a fine roadstead. It exports sugar, oil. aloes, and molasses. 20,000
Bridgewater, Francis Egerton, Duke of, called the Father of British Inland Navigation; born 1736: died London 1803: see pages 4866, 5943
Bridgwater, Ancient market town and port in Somerset, on the Parret. Admiral Blake was a native. 16,000
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Bridlington. Yorkshire watering-place near Flamborough Head. 23,000
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Bright, Sir Charles, English electrical engineer: born Wanstead, Essex, 1832; died. Abbey Wood, Kent, 1838; laid first Transatlantic cable, 1603
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schools. 143,000
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Adriatic ports of ftaly, with mail and
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a massive medieval castle, and a large export trade. 50,000
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Brisbane. Capital and chief port of Queensland, Australia, on Brisbane river. A healthy and well-built city, it has two cathedrals and a university, and manufactures leather, soap, and tobacco. Sheep, frozen meat, tallow, coal, and wool are exported. 230,000
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England, and one of the most historic.
Standing 7 miles from the mouth of the
Avon, it has fine docks at Avonmouth
accessible to the largest vessels, and
its industries include manufactures of
tobacco, cocoa, chocolate, and soap.

its industries include manufactures of tobacco, cocoa, chocolate, and sonp. There is a cathedral, founded in 1142, while the church of St. Mary Redelific is one of the finest Perpendicular buildings in England. Other prominent buildings are the university and the Cabot Tower. Clifton is a residential suburb. 380,000: see pages 2573, 5872. Pictures of Bristol arms of the city, in colour, 4990 cathedral, 1718 cathedral, chapter house entrance, 5867 cathedral, west front, 5882. Normans building castle keep, 3151 university arms, in colour, 4989. Bristol Fighter, British aeroplane, 4689. Britain, did any Apostles come to

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spans 230 feet. The total length of the
tunnel is 1511 feet, and it weighs over5000 tons: see page 548
British Association for the Advancement of Science, founded in 1821
British Columbia. Canadian western
province; area 356,000 square miles;
population 525,000; capital Victoria
(40,000), on Vancouver Island. Lying
west of the Rockies, it has a mild and
healthy climate, and is noted for its
fruit-growing industry. The rivers,
the Fraser especially, are the source
of a great salmon-canning trade, while
the hills are rich in coal, copper, zinc,
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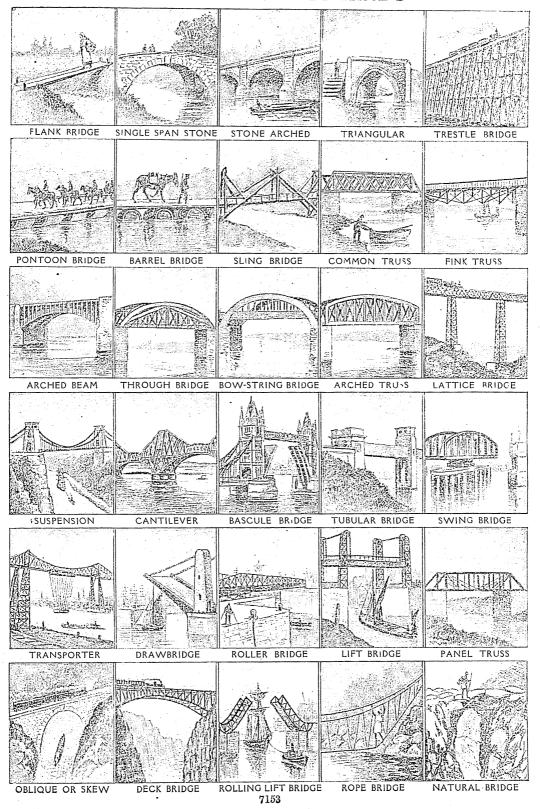
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#### BRITISH EMPIRE

Greatest empire in history; area 13.910,000 square miles; population 460 millions; capital London (7.500,000). It covers about a quarter of the globe, and contains more than a quarter of the

## BRIDGES OF ALL KINDS



world's population, its people being of every race, colour, and religion. The United Kingdom and the Indian Empire are its nucleus, and the remainder may are its nucleus, and the remainder may be divided roughly into Self-governing Dominions, Colonies, and Mandatory States under the League of Nations. The Self-governing Dominions are the Irish Free State, Canada, Newfoundland, South Africa, Australia, and New Zealand, while Southern Rhodesia and Malfa elso have responsible govern-Zealand, while Southern Rhodesia and Malta also have responsible government. Of the Colonies many such as the West Indies and Mauritius are practically self-governing, but some of the more backward are administered almost directly from the Colonial Office. British Mandatory States include Palestine; Mesopotamia, and the former German colonies in Africa

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#### BRITISH ISLES

Archipelago consisting of two large islands—Great Britain and Ireland—and about 5000 smaller ones. Of these the Isle of Wight, the Channel Islands, Anglesey, Man, and the Orkney Shetland, Hebrides, and Seilly Islands are the chief. Area 121,600 square miles; population 47,500,000

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and Measures; Units of Measurement
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Brittany. North-west peninsula of
France, formerly an independent
duchy. Famous for its beauty and the
quaint customs of its people, mostly
peasants and fisherfolk, it contains the
beautiful old towns of Rennes, its old
capital, Dinan, and Vannes, many small
senside resorts, and the ports of
Nantes, Brest, Lorient, St. Nazaire,
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Broads. District of shallow lakes in
Norfolk and Suffolk, forming a popular
holiday ground. The rivers Yare,
Bure, and Waveney traverse the
district, and are frequently connected
with the Broads by dykes
Broadstairs. Popular watering-place
in the Isle of Thanet, Kent. 15,500
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Broken Hill. Silver-mining and pastoral centre in western New South Wales, Australia. Gold, lead, copper, and tin are worked. 25,000
Broken Telescope, one with the tube bent at right angles and a mirror inserted half way between the object glass and its focus; used in theodolites

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Bronzed soft-skinned beetle, in colour, 6336
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Brooke, Stopford Augustus, Irish author and literary critic; born Letterkenny, Co. Donegal, 1832; died Ewhurst, Surrey, 1916: see page 3833
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Brooklym Bridge. Nearly 6000 feet long and 135 feet above East River, this bridge has a main span of 1595 feet, and carries two roadways, a footway, two electric car tracks, and two

and carries two roadways, a footway, two electric car tracks, and two elevated roadway tracks. It is over 82 feet wide and the four cables supporting it contain 14,000 miles of wire

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Brueghel, Pieter, Flemish painter of rustic scenes; born Brueghel. near Bruges; died about 1570: see 1058 picture of children playing, 1057
Bruges. Beautiful Belgian city, one of the greatest cities in Flanders in the Middle Ages. Its medieval buildings include the famous belfry, 350 feet high; the cathedral; the Gothic hôtelde-ville; and the lovely church of Notre Dame, with a spire 440 feet high. It still has a large textile trade. 60,000: see page 5646 architecture of cathedral, 5992
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Czecho-Slovakia, with a cathedral and
manufactures of woollens, machinery,
linen, and leather. 225,000
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Bruno, St., 11th-century saint who was
boin at Cologne and became a high
church dignitary. In 1080, however,
he decided to go into retirement with
six others, and, the Bishop of Grenoble
having given him the Valley of Chartreuse, he founded there the austere
Carthusian order
Le Sueur's painting of his life, 1684
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city of northern Germany, with
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Brush turkey, bird, 4251

Brussels. Capital of Belgium, on the Senne. Famous for its fine buildings and schools, it manufactures textiles, jewellery, and artistic wares, and contains the beautiful cathedral of St. Gudule, dating from the 13th century. 785,000: see page 5645
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a form of, 0468
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Buchan Ness. Easternmost point of Scotland, in Aberdeenshire
Bucharest. Capital, and commercial and railway centre of Rumania, on the Dambovitza tributary of the Danube. It has a university and a fine cathedral; 400,000: see page 5150 cathedral, 5160 general view 5161
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Canada Gates, 6740
garden front of the palace, 6610
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view from grounds, 6469 Buckinghamshire. So South - midland county of England, containing Aylesbury, the capital, High Wycombe, Slough, Buckingham, and Chesham.

Europe, it is the depôt for the immense Hungarian agricultural trade; it has engineering works and a university. 1,200,000: see page 4551
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Bude. Watering-place among fine cliff
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scenery on north Cornish coast (4100) Budgerigar, bird, habits, 3502, 3499 Budget, what it is, 4537, 4658 Budweis, or Budejovice, cathedral and manufacturing city of Bohemia, Czecho-Slovakia. 45,000 Buenos Aires. Capital and chief port of Argentina, on the La Plata. Founded in 1536 by Pedro de Mendoza, its growth has been enormously rapid since 1860, and it is now the largest city south of the Equator. More than four-fifths of the exports of Argentina pass through it, principally frozen meat, wool, grain, and livestock. The city is well laid out and has many fine buildings, including the great cathedral modelled after the Madeleine at Paris. There are immense docks. 1,800,000

modelled after the Madeleine at Paris.
There are immense docks. 1,800,000
Buffalo. American industriel and commercial centre, in New York State.
Standing at the castern end of Lake Erie, it is one of the largest ports on the Great Lakes, with an immense distributing trade in grain, flour, cattle, iron, coal, and lumber. The manufactures are varied and important. 525,000: see pages 6996, 7012 pictures, 7005
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portrait, 5569

Agriculture and furniture-making are the chief occupations. Area 842 square miles; population 236,000
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Bushire. Chief Persian port, exporting
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Bushmen. Division of African Negroes
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South Africa and love independence
and the wandering life of the hunter,
preferring caves to huts. Though true
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Bute. Scottish county consisting of
Arran, Bute, and several smaller islands
in the Firth of Clyde; area 218 square
miles; population 34,000; capital
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Cadiz. Ancient Spanish city and port, having been founded by the Phoenicians as Gades about 1100 B.C. The largest port on the south-west coast, it has large shipbuilding and export trades and considerable manufactures. The two cathedrals contain fine pictures by Murillo. 75,000: see page 5278

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Caen. Historic city of Normandy, France, with many associations with William the Conqueror. The Abbaye-aux-hommes was founded by him, and the Abbaye-aux-dames by Queen Matilda; their former graves are in the churches of St. Etienne and La Sainte Trinité. Caen stone is quarried in the neighbourhood. 40,000: see pages 717, 5746
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Cagliari. Capital and chief port of Sardinia, with a good harbour and a large trade. It has a cathedral and a university, and is rich in ancient remains, having been a Carthaginian stronghold in the 6th century B.C. 65,000
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65,000 Cahors. Ancient French city on the Lot, with many Roman remains, a 12th-century Romanesque cathedral, and the finest fortified medieval bridge

and the linest fortified medieval bridge in France. 15,000 Caiaphas, at trial of Jesus, 4588, 4701 Caicos Islands, flag, in colour, 2407 Cain, life story, 575, 374 statue, by G. Dupré, 5010 Caine, Sir T. Hall, English novelist; born Runcorn, Cheshire, 1853: see page 3714

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Cairngorm. Peak of the Grampians on the border of Banffshire and Invernesshire. It is noted for its topazes and Cairngorm stones, a variety of quartz. 4080 feet: 768, 1301

Cairo. Largest African city, capital of Egypt. Standing on the Nile, near the site of ancient Memphis, it is the emporium for the merchandise of north-east Africa, and has considerable manufactures. There are over 250 mosques, among them El Azhar, the greatest Moslem university, while other important buildings are the cathedral and the citadel built by Saladin in 1166. Near by are the tombs of the Caliphs and the Pyramids of Gizeh. 800,000: see page 6862 famous mosques at, 5624
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machine
Calcutta. Largest Indian city, and
capital of Bengal, on the Hooghli. It
grew up round Fort William, completed in 1702, and became the emporium for the trade of the Ganges and
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and cotton. There are fine buildings
and two cathedrals. 1,300,000
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and two cathedrals. 1,300,000
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Calderon de la Barca, Pedro, greatest Spanish dramatist and poet; born Madrid 1600; died there 1681: see page 5058
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Madrid 1600; died there 1081; see page 5058 portrait, 5055 Caledonian Canal. Waterway running through the Great Glen of Scotland, and connecting Loch Linnhe with the Moray Firth and North Sea; 60 miles long, it is formed by Loch Ness, Loch

Oich, and Loch Lochy, with 23 miles of artificial cuttings. The original survey for the work was made by James Watt in 1773, and the canal was begun by Thomas Telford in 1801, and opened in 1822; see page 4158 locks at Fort Augustus, 4865 Caledonian Railway, engine, in colour. 1044

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Calgardup Cave, Western Australia, 2003
Calgary. Oldest and largest city of
Alberta, Canada, on the main line of
the C.P.R. A great ranching centre,
it manufactures leather and flour.
63,000

street scene 2327 Caliban, in Shakespeare's Tempest, 6294

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Calicut. Indian port on the Malabar
Coast, exporting coffee, timber, and
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California. Second largest American
State, bordering the Pacific; area
158,000 square miles; population
3,450,000; capital Sacramento. Possessing a beautiful climate and immense
mineral and agricultural resources, it sessing a beautiful climate and minerial mineral and agricultural resources, it has had a phenomenal rise in prosperity since settlers were first attracted there by its gold; in 1850 its population was only 93,000. Gold is still the tion was only 95,000. Gold is still the principal mineral, but copper, iron, chromium, antimony, lead, silver, quicksilver, rock-salt, and much petroleum are produced. Agricultural produce includes wheat, barley, wine, duce includes wheat, barley, wine, lucerne, hops, and vast quantities of honey and fruit. San Francisco (510,000) has a magnificent harbour; Los Angeles (580,000) is the centre of the kinema trade, and Oakland(220,000) a business centre. Abbreviation Col.

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Canada, Dominion of, Largest and richest British colony, stretching from the Great Lakes to the Arctic and from the Atlantic to the Pacific. It is composed of nine provinces, with the Yukon and North-West Territories; its area is 3,730,000 square miles, and its population nearly 9,000,000, while it is traversed from east to west by the Canadian National Railways and the famous C.P.R. The chief physical features are the splendid waterway of the St. Lawrence and the Great Lakes famous C.P.R. The chief physical features are the splendid waterway of the St. Lawrence and the Great Lakes in the east; the prairies of the centre, with their immense cornfields; and the Rocky Mountains in the west. The bulk of the people live in the St. Lawrence basin, which is the industrial region, containing Ottawa, the Dominion capital (110,000), Montreal (620,000) Toronto (525,000), Hamilton (145,000), and Quebec (95,000); and here too are thriving timber, farming, fruit-growing industries. The prairie provinces in the centre are one of the world's chief granaries, while in the far west is British Columbia, with its orchards and salmon rivers. The vast North-West Territory is a land of lakes and forests and the hunting ground of trappers. In 1534 Jacques Cartier occupied Canada for France, and in 1608 Champlain founded Quebec; in 1763, after the capture of Quebec by Wolfe, all Canada became British

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8750 feet: see page 5270
Canterbury. Ecclesiastical capital of
England, on the Kentish Stour. An
ancient British town, it became
Durovernum of the Romans, and later
capital of Saxon Kent. The magnificent cathedral was founded by St.
Augustine in 597, and was finally completed about 1495. Here Thomas
Becket was murdered in 1170, his
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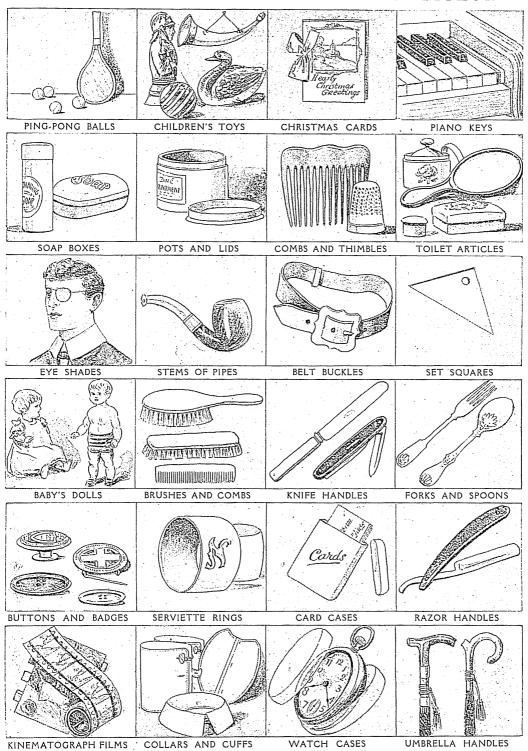
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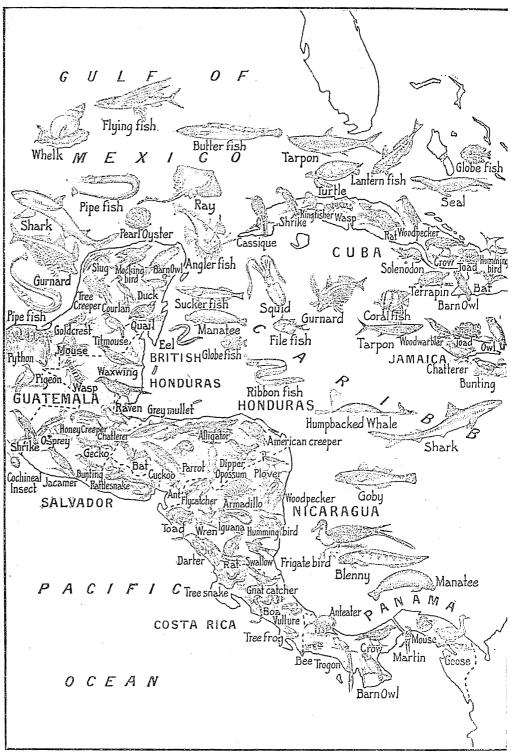
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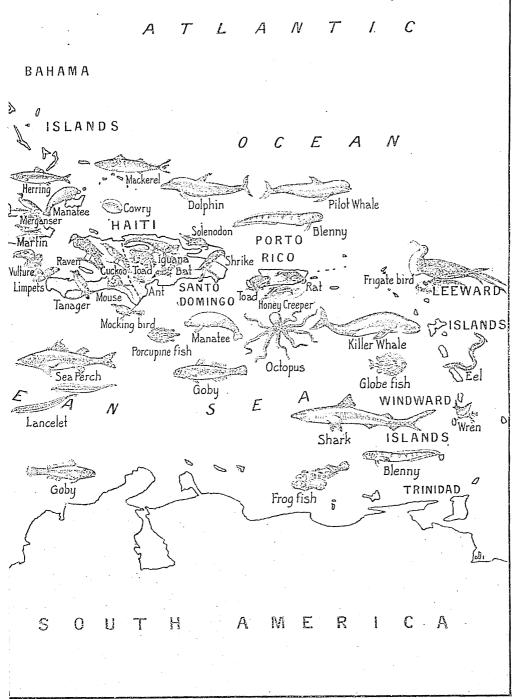
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### MAP OF THE INTERESTING ANIMAL LIFE OF



AS MAY BE SEEN FROM THIS PICTURE MAP THE ANIMAL LIFE OF CENTRAL AMERICA AND

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Chesterfield. Industrial town in Derbyshire, having textile manufactures and foundries, iron, coal, and lead mines, and slate and stone quarries. The Gothic parish church has a curious twisted spire, 228 feet high. 62.000 parish church with twisted spire, 1836 Chesterton, G. K., poems: see Poetry Index.

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centre of the packed meat, cattle,
grain, and lumber trades of the Middle
West, over 16 million cattle being
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liberated by San Martin. It is now one of the most progressive parts of the continent, and is noted especially for its wealth in copper and nitrate; though it also exports gold, silver, wool, and cereals. Valparaiso (185,000) is its great port; others are Concepcion, Iquique, and Antofagasta; 7014
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China. Great Asiatic republic, home of
the most ancient civilisation in the
world. China proper comprises 18
provinces, with a total area 1,500,000
square miles: it is remarkable for its
great natural wealth and fertility, the
Yangtse-kiang valley especially being
one of the most populous districts in
the world. Agriculture is by far the
most important industry, the largest
crops including tea, wheat, barley,
rice, maize, millet, fruit, sugar, indigo,
spices, cotton, and tobacco; but the
mineral wealth, in coal especially being
one of the most populous districts in
the world. Agriculture is by far the
most important industry, the largest
crops including tea, wheat, barley,
rice, maize, millet, fruit, sugar, indigo,
spices, cotton, and tobacco; but the
mineral wealth, in coal especially, is
very considerable. Silk, tin, and antimony are great exports. The chief
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China Sea. Part of the Pacific lying west
of the chain of islands fringing castern
Asia. It includes the Yellow Sea and
the Gulf of Siam, its chief ports being
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Hong Kong, Saigon, Bangkok, Manila,
and Singapore
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Chinese. A very numerous race of
southern Mongols who have inhabited
China for thousands of years, and have
survived by the inertia of their temperament. A frugal, peace-loving,
hard-working people, they have a literature dating back to 700 B.C., and their
language has changed little in the
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Cloister and the Hearth, The, novel by Charles Reade, 3582 (Clondalkin, Ireland, Round Tower, 3060 Clonfert. Village of Co. Galway, Ireland, on the Shannon. Here is a small cathedral dating from the 12th century. (1600) (Clonmacnoise. Ancient Irish holy city, in King's County. An abbey was founded here in 548, and extant ruins include seven churches, two round towers, three crosses, the bishop's palace, and a castle

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of Clyde at Dumbarton, its basin being
the chief industrial centre in Scotland,
and famous particularly for its shipbuilding trade. 106 miles long, it

the chief industrial centre in Scotland, and famous particularly for its shipbuilding trade. 106 miles long, it passes Lanark, Hamilton, Glasgow, Greenock, and Gourock. The Medwin, Mouse, South Calder, Kelvin, Duneaton, Douglas, Avon, and White Cart are tributaries; see page 213 shipbuilding yards. 341

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Cm. stands for Centimetre, the French

measurement

C.M.G. stands for Companion of the
Order of St. Michael and St. George

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New Zealand, Nigeria, Nova Scotia,
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miles, largely in the Mekong delta. The
soil is very fertile, producing rice,
rubber, cotton, coconuts, and tobacco;
Saigon, the capital, is a thriving port.
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Population 3,000,000
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Coelostat, apparatus with a revolving mirror in which the Sun or other celestial objects appear stationary Coffee, production in Abyssinia, Arabia, Australia, Brazil, Cape Verde Islands, Colombia, Costa Rica, Dutch Guiana, Jamaica, Java, Kenya Colony, Liberia, Mexico, Nigeria, Peru, Queensland, and Turkey: see descriptions of the countries

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Colchester. Ancient Essex market town, capital of Cunobeline, and later the Camalodunum of the Romans. Parts of the Roman wall still exist; the castle is the largest Norman keep in England; and there are remains of the medieval priory of St. Botolph and monastery of St. John. The Colne oyster fishery is famous.

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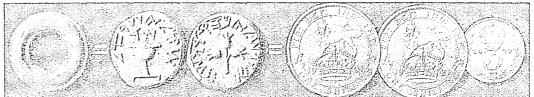
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Cologne, Largest city of the German Rhineland, with extensive manufactures and a busy trade on the Rhine. Its glorious cathedral has spires 515 feet high. 650,000
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Colombia. North-western South American republic; area 440,000 square miles; population 5,860,000; capital Bogotá (1650,000). Much of the country consists of cool pastoral tablelands among the Andes, and transport is generally very difficult; but there are huge exports of coffee and bananas, while trade in hides, precious metals, emeralds, and indiarubber is increasingly important.

### COINS MENTIONED IN THE BIBLE

It is very difficult from our English Bibles to know what sum of money is intended when any particular coin is mentioned. We have in the New Testament, for instance, the word farthing; but this does not mean an English farthing. In fact, three different coins are translated by the word farthing. In the Old Testament, too, money is often spoken of, but up to the time of Ezra there were no coins in use among the Israelites.



The Dram, known to coin experts as the Daric, the earliest coin mentioned in the Bible. See Ezra ii. 69; viii. 27; Nehemiah vii. 70, 72. It was of gold, and was worth £1 2s. od. of our money.



The Shekel, really a weight and not a coin, though about Ezra's time the Jews began to make a coin called a shekel and of the same value as the silver rings of a shekel weight. Genesis xxiii. 15; Exodus xxx. 13. A shekel of silver was worth 2s. 3d., and a shekel of gold, nearly half an ounce in weight, was worth £1 16s. 6d.



The Half-Shekel, Exodus xxx. 13, worth 1s. 1½d., was also a weight of silver, but after Ezra's time a coin of this value was used; and the same thing happened with the Quarter-Shekel, worth 6¾d., i. Samuel ix. 8. A Talent was purely a weight, a talent of gold being worth £5475, Exodus xxv. 39.



The Drachma, the piece of silver which the woman lost and found, as described in Luke xv. 8, the only place where it is mentioned, was a Greek coin worth about 8d. of our English money.



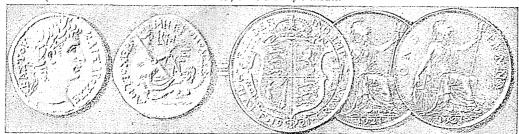
The Assarion, a Greek and a Roman coin equal to three-farthings of our money. It is translated farthing in Matthew x. 29: "Are not two sparrows sold for a farthing?"

# AND THEIR VALUE IN OUR MONEY

They simply weighed up so much gold or silver, usually in the form of rings; and the words shekel, half-shekel, and talent are not coins but weights. In Ezra's time, however, coins called shekels and half-shekels were made and put into general circulation. The pictures given on these pages show all the coins mentioned in the Old and New Testaments with their approximate value in the English money which we use today.



The Didrachma, or Two Drachma Piece, a Greek coin equal to 1s. 4d. of our money. This was the sacred tribute money towards the support of the Temple, referred to in Matthew xvii. 24, and was roughly equal in value to the half-shekel, the old Temple tribute.



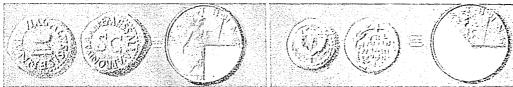
The Stater, a Roman coin equal to 2s. 8d. It was the coin found by Peter in Matthew xvii. 27, equal to two didrachma, and was the piece of silver referred to in Matthew xxvi. 15, 30 of which Judas received for betraying Jesus.



The Denarius, a Roman coin worth 8½d., and called in the New Testament a penny. See Matthew xviii. 28; xx. 2, 9, 10, 13; xxii. 19; Mark vi. 37; xii. 15; xiv. 5; Luke vii. 41; x. 35; xx. 24; John vi. 7: xii. 5.



The Dupondius, a Greek coin equal to two assaria, or three-halfpence of our money. It is the single coin referred to in Luke xii. 6, and is translated in the Bible as "two farthings."



The Quadrans, a Roman coin equal to three-quarters of a farthing. This is the coin translated farthing in Matthew v. 26 and Mark xii. 42. The last coin mention in the Bible is the Lepton or widow's mite of Mark xii. 42 and Luke xxi. 2. It was a Greek coin worth three-eighths of a farthing of our money.

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Coloradia venata, moth of Argentina, caterpillar, in colour, 6210

friend and helper; born Marino, near Rome, 1490; died Rome 1547: see page 6186
Coloradia venata, moth of Argentina, caterpillar, in colour, 6210
Colorado. American State in the Rocky Mountain system; area 104,000 square miles; population 950,000; capital Denver (260,000). Silver, gold, lead, coal, and petroleum are extensively produced. Abbreviation Colo. almond orchard, 5977
Grand Canyon, 2131
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Colorado River. Longest in the United States after the Mississippi and Missouri. Rising in the Rocky Mountains, it flows 2000 miles into the Gulf of California, draining about 225,000 square miles. Much of its basin consists of an arid plateau, but in places irrigation is being carried out. It is famous for its stupendous Grand Canyon in Arizona: see page 3806
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Comines, Philippe de, French historian of the reign of Louis XI; born probably Comines, near Lille, about 1445; died Argenton 1511: see page 4454 Coming of Rustem, story and picture,

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Committee of Ways and Means, consisting of the whole House of Commons
which votes the taxation required to
meet the grant of Supply
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Marcus Aurelius; born Lanuvium, 161;
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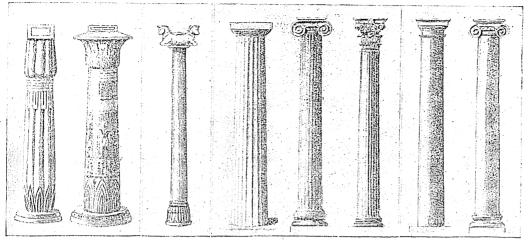
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Como. Walled Italian city at the south-west end of Lake Como, among clive and orange groves. It has a cathedral, a marble 13th-century town hall, and some manufactures. 40,000 Como, Lake of. Beautiful lake in northern Italy, fed by the Adda. Lying due north of Milan, it is 55 square miles in extent, being about 43 miles long, and from one to two and a half miles broad. Bellagio is considered its loveliest resort views near, 4785
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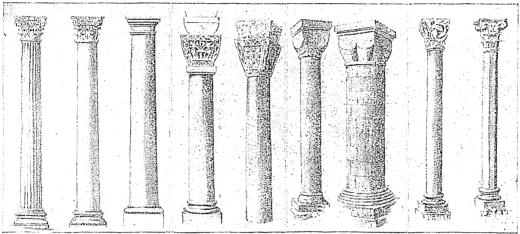


EGYPTIAN

ASSYRIAN

GREEK DORIC, IONIC, CORINTHIAN

ROMAN DORIC, IONIC

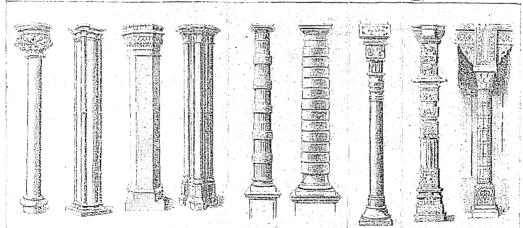


CORINTHIAN COMPOSITE TUSCAN

BYZANTINE

NORMAN

ROMANESQUE



VARIOUS FORMS OF GOTHIC

RENAISSANCE

SARACEN

INDIAN

The column, a very notable feature of architecture, probably originated in Egypt, where the earliest columns have been found. These pictures show how the column developed at different ages, and the varieties of form it assumed under various styles of architecture, as, for instance, in Greek and Roman times.

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would pay them
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Congo, Belgian. Vast Central African territory, covering about 900,000
square miles; it is watered by the Congo river, which forms its trade highway and outlet, though in places navigation is interrupted by falls. The interior is very rich, producing coffee, cocoa, rubber, copal, palmoils, and palm-nuts; gold, copper, and diamonds are worked, especially in the Katanga region. Boma and Leopold-ville, the capital, are the chief towns, but of the estimated population of 11,000,000 only about 6000 are Europeans, 6'49
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highway and outlet, though in places navigation is interrupted by falls. The interior is very rich, producing coffee, cocca, rubber, copal, palmoils, and palm-nuts; gold, copper, and diamonds are worked, especially in the Katanga region. Boma and Leopold-ville, the capital, are the chief towns, but of the estimated population of 11,000,000 only about 6000 are Europeans, 6749 map of physical features and industrial life, 3196-98 Congo, River. Great river of Africa, having the next largest basin in the world after the Amazon. Rising in Northern Rhodesia, it forms an immense system of waterways in the Belgian Congo, its greatest tributaries being the Lomami, Aruwimi, Ubangi, and Kasai. 3000 miles long, it is navigable for almost 1500 miles, except for a stretch of rapids in its lower course. Its basin covers 1,300,000 square miles: 2494, 6742 mistaken for Nile by Livingstone. 3003 traced to its mouth by Stanley, 3004 Congon, variety of tea, 2314 Congress, American national assembly's functions, 3794 first American, 3678 from the Exchequer in taxes to finceme tax or other taxes. Conscience, taxe of income tax or other taxes taxes, The, painting by Dagnan-Bouvert, 2928 Conservatives, why so called, 2138 Conservatives, why so called, 2138 Conscipts, The, painting by Dagnan-Bouvert, 2928 Conscipts

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Connaught. Western province of Ireland, comprising Galway, Leitrim, Roscommon, Sligo, and Mayo. Mountainous and boggy, with several large lakes, it has only two towns, Galway and Sligo, with more than 10,000 people. Area 6863 square miles; population 610,000
Connecticut. American New England State; area 5000 square miles; population 1,400,000; capital Hartford (140,000). Manufactures are important, at Bridgeport (150,000) and New Haven (165,000) especialty, and iron and building stone are found. Abbreviation Conn.

iron and building stone are found. Abbreviation Conn.
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Eastern emperor, 5026 Constantine, St., Cornish monk who doined St. Columba and St. Kentigern in the conversion of the Scots. He was killed in Kintyre about 576, and is regarded as the first martyr in Scotland

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Constantinople. Historic capital of the Turkish Empire, situated on the Golden Horn. Founded by the Greeks as Byzantium 638 B.C., Constantine made it capital of the Eastern Empire, and it became Turkish in 1453. Still surrounded by walls, it is divided into the Turkish district of Stamboul and the Christian quarters of Pera and the Turkish district of Stamboul and the Christian quarters of Pera and Galata. In Stamboul are the famous church of St. Sophia, now a mosque, the splendid mosques of Sulciman and Mohammed II, and about 200 other mosques; the Tower of Galata was built by the Genoese. Mainly badly built and dirty, Constantinople is a great centre of trade. 1,200,000: see pages 444, 5742, 6916
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Consumption: see Tuberculosis
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Conway. Port of Carnarvonshire, at
the mouth of the Conway. Surrounded
by a high battlemented wall with 21
round towers, it has a splendid castle
dating from 1284, (6500)
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Conwar, streeties, bridge. Puilt et

dating from 1284. (6500)
Castle Street, 1461
Conway suspension bridge. Built at the mouth of the River Conway by Teltord in 1826, this remarkable iron bridge has a central span of 327 feet and a width of 32 feet Cook, Eliza: for poems see Poetry Index Cook, Captain James, English navlgator; born Marton, Yorkshire, 1728; killed in Hawaii 1779; explored the coasts of New Zealand and New South Wales, 2380, 2569, 2693, 4694, 6549 discovery of New Zealand, 1950 portrait, 1826 ship in danger, 2376 tree to which he tied ship, 4863
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of Denmark, on Zealaud island. Owing
to its position, it has been for centuries

to its position, it has been for centuries a great commercial centre for the Baltic and Scandinavian countries, and it has sugar, tobacco, watch, and textile manufactures. There are a university and a cathedral. 560,000: see pages 5769, 5787

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centre in Argentina. 160,000
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Cordova. Ancient and picturesque
Spanish city in Andalusia, being enclosed by massive turreted walls.
Famous in Moorish times, it has a
cathedral built as a mosque in the 8th
century, the most magnificent of its
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kind in Europe. 70,000: see rage 5622
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Cork. Southernmost county of Ireland, in Munster. Agriculture and some mining are carried on; dairying is important; and Cork, the capital, Queenstown, Youghal, and Kinsale

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Link Standing 11 miles above the entrance of the Lee to Cork Harbour, by Sir Pures Tong 2890

Irish Free State, and capital of Co. Cork. Standing 11 miles above the entrance of the Lee to Cork Harbour, it has a great export of agricultural and dairy produce, and is the commercial and manufacturing centre of Munster. There are Anglican and Roman Catholic cathedrals. 80,000: see page 3066

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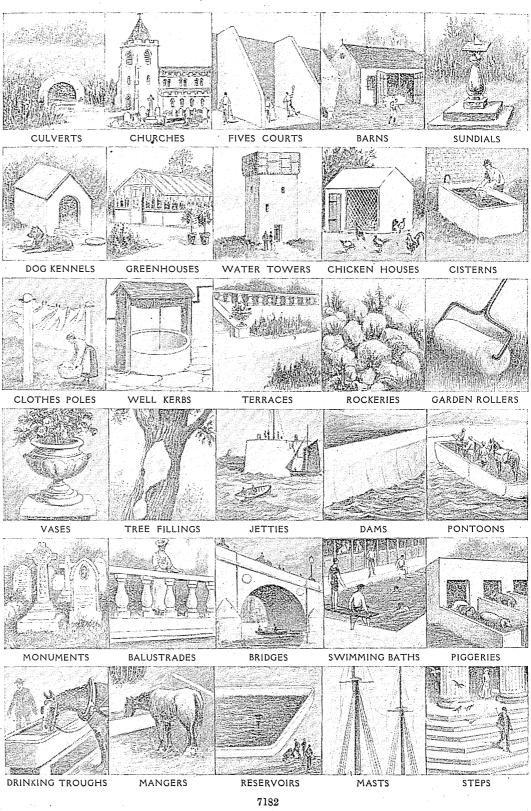
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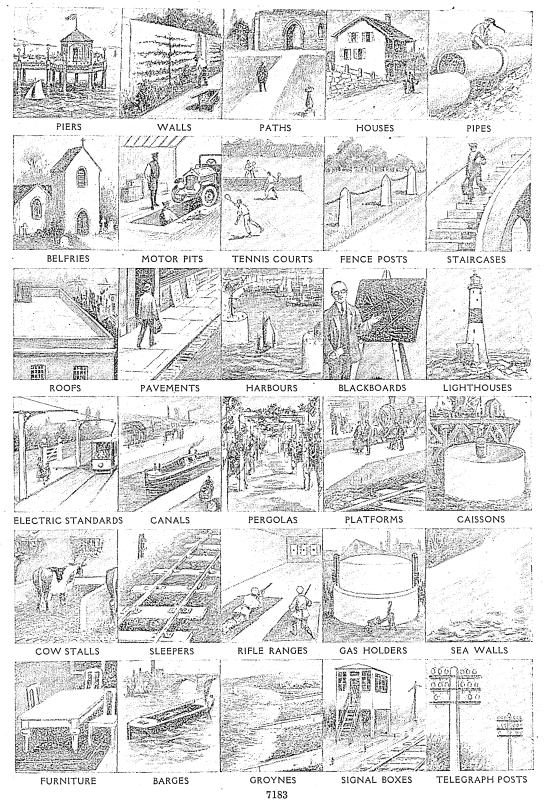
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large quantities of olives and chestnuts are grown. It belonged to Genoa
up to 1768, when it was sold to France;
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G.S.I. stands for Companion of the Order of the Star of India
O.T. stands for certificated teacher

Order of the Star of India C.T. stands for certificated teacher C.T.C. stands for Cyclists' Touring Club G.T.C. stands for Cyclists' Touring Club Guba. Island republic in the West Indies; area 44,000 square miles; population 3,125,000; Capital Havana (380,000). It has great agricultural wealth, being famous especially for its fine quality of tobacco, while great quantities of sugar, bananas, pine-apples, oranges, coconuts, and hard-woods are also exported. Copper, iron,

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phosphates, cotton, and salt are
produced

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culminating point
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(7500)

(7500)

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(Latin Divinitatis Doctor)
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Deccan. Name applied to practically the whole of the tableland of the Indian peninsula, but especially to the region between the Kistna and Narbada

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Declination of Rights, English Constitution is largely based on, 1214

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Declination compass, one used for measuring the variation of the magnetic needle from the astronomical meridian

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day Dee. River of England and Wales, rising in Lake Bala, Merionethshire, and flowing through Denbighshire and Cheshire, and past Corwen and Chester, into the Irish Sea. 70 miles

King Edgar rowed by six kings, 594 Dee. One of the finest Scottish salmon rivers, in Aberdeenshire. It rises in the Cairngorm Mountains and flows into the North Sea at Aberdeen, passing Inverey, Balmoral, Ballater, and Aboyne. 90 miles

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investment of money entitling the investor to a regular income, frequently until death occurs. A deferred annuity is an annuity on which payment is deferred or delayed until the beneficiary

has reached a certain age
Defoe, Daniel, English novelist and
political writer; born London probably
1661; died there 1731; author of
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painter in crayon; born St. Quentin
1704; died there 1788: see page 1689
De la Vega, Garcilaso, Spanish historian
of Peru; born Cuzco 1539; died
Cordova 1616: see page 5056
Delaware. Second smallest American
State, being little larger than Northumberland; area 1960 square miles;
population 225,000; capital Dover,
Wilmington (110,000) is the largest
town. Abbreviation Del.

Wilmington (110,000) is the largest town. Abbreviation Del. flag of American State in colour, 2410 Delaware river. American river rising in the Catskill Mountains and flowing past Philadelphia into the Atlantic. It is revisible in the Thomas 1200-116. is navigable up to Trenton, 130 miles from its mouth. 350 miles

Del Cano, Sebastian, Spanish navigator, lieutenant of Magellan; born near San Sebastian about 1460; died at sea 1526; first circumnavigator of the globe, 774

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De Lesseps, Ferdinand, French diploma-De Lesseps, Ferdinand, French diplomatist and engineer; pioneer of the Suez Canal; born Versailles 1805; died near Paris 1894; see pages 4867, 6862 Panama Canal failure, 4868 Delft. Ancient Dutch town, burial place of Grotius, Leeuwenhoek, and Van Tromp. Here William the Silent was assassinated. 40,000 architecture of town hall, 6371

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died there 1492; teacher of Perugino:
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Del Piombo, Sebastian, Venetian painter; born probably Venice 1485; died
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1623: see page 5055
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Demavend. Highest mountain in the Elburz range of Persia. 18,000 feet
De' Medici: see Medici
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De Montfort, Simon, English statesman, patriot, and general; born about 1208; killed at the battle of Evesham 1265; founded Parliament in England, 840 riding into Rochester Cathedral, 839
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Denbigh Castle, 961
Denbighshire. County of North Wales; area 665 square miles; population 155,000; capital Denbigh. Other towns are Wrexham, Colwyn Bay, and Llangollen, and coal is mined Dendera temple, column, 5374

and Liangoitet, and coal is mined Dendera temple, column, 5374 reliefs on wall, 5374 Denham, Dixon, English explorer; born London 1786; died Sierra Leone in 1828

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Denis St., see Denys, St.
Denmark. Smallest Scandinavian kingdom; area 16,600 square miles; population 3,300,000; capital Copenhagen (560,000). Its chief divisions are population 3,300,000; capital Copenhagen (560,000). Its chief divisions are the Jutland peninsula and the large islands of Zealand, Fünen, Falster, Laaland, and Bornholm, with the outlying Faröe Islands; Iceland is a self-governing dominion. The chief industries are agriculture and dairy-farming, the exports consisting largely of cereals, bacon, butter, eggs, hides, skins, cattle, and horses; sugar-beet is grown, and there are glove, leather, and porcelain manufactures. The chief towns are Aarhus, Aalborg, Odense, Randers, Elsinore, Horsens, and Esbjerg, 5765 literature, 4939
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Dent du Midi. Mountain group on the
border of Switzerland and France.
10,700 feet
Denver Capital of Colorado, U.S.A.,

10,700 feet Denver. Capital of Colorado, U.S.A., with a university, a Roman Catholic cathedral, and many fine buildings. The centre of a great mining district, it has smelting and refining works, and trades also in cattle. 260,000: see page 3799

page 3799 Denys, St., Athenian, called Dionysius, who was made Bishop of Athens by St. Paul, and afterwards sent by St. Clement to convert the people of Paris, finally suffering death at their hands on Montmartre

Montmartre
Deodar tree, species of cedar, 3789
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Amazon: born Trujillo about 1490;
died probably Venezuela about 1546:
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De Quiros, Pedro, Portuguese navigator; born about 1360; died Panama 1614; discovered the New Hebrides: 2378

Capital of Derbyshire, manu-Derby. facturing silk, lace, hosiery, motor-cars, and china. It has large railway

and engineering shops

and engineering shops 135,000 origin of name, 594 railway works, 340 arms, in colour, 4990 Florence Nightingale statue at, 3983 Derbyshire. Midland county of England; area 1016 square miles; population 715,000; capital Derby. Much of it lies on a coalfield, while there are considerable textile; quarrying, ironfounding, and pastoral industries. Chesterfield, Ilkeston, Glossop, Matlock, Buxton, and Bakewell are among the chief towns. Here is the Peak. the chief towns. Here is the Peak.

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De Ruyfer, Michael, the greatest Dutch admiral; born Flushing 1607; died Syracuse, Sicily, 1676; sailed up the Medway in 1667; see pages 2889, 5530 climbing church steeple as a boy, 2884 monument at Flushing, 5539
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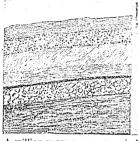
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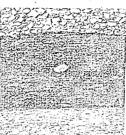
### A DIAMOND AND ITS STORY

For thousands of years men and women have sought after diamonds and have paid fortunes to obtain them. At one time all diamonds came from India, and when these gems were found in Brazil they had to be sent to India and sold from there as Indian diamonds, because people did not believe that Brazilian



A million years ago a mass of iron and carbon lay mixed to-gether in the earth's crust, with enormous pressure upon it.





Gradually the mass cooled, and the drop of carbon became a crystal which we now know to be a diamond.



An explosion forced a channel to the surface of the earth, and volcanic mud containing the diamond was forced up.





Water passed over the place Other mud was deposited on later and gradually washed top of the diamond, and away the earth, carrying the diamond with the mud.

Other mud was deposited on top of the diamond, and centuries later this had become hard rock beneath dry land.



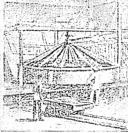
One day out the piece of the earth, including e of rock which co tained the diamond. con-



The rock was spread out in the sun and left for months, till it had become less hard and more easy for crushing.



It was then taken to a factory, where the piece of rock containing the diamond was crushed with similar pieces.



Next the crushed rock was washed round and round till all the heavier fragments, including the diamond, had sunk



tnen The fragments were passed with water over a series of greased tables, the diamond sticking to the grease.



The diamond, with others, was sorted out, washed, weighed, and valued, and then packed and sent to Europe or America.



next handed to a diamond-cutter, who cut away the flaws and gave it facets so that it would scintillate.



After being cut it was polished on flat metal discs, fed with other diamonds by a jeweller, diamond-dust and oil, and revolved at great speed by steam in a beautiful necklace.





And when a lady wore it the diamond was admired by all, though how many who saw it could guessits ancient history?

diamonds were genuine. The biggest find of diamonds has been in South Africa. In the first twenty years the mines there yielded over £60,000,000, and now they employ 8000 persons, and produce over £7,000,000 worth of diamonds in a year. These pictures show the history of a diamond.

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Doctrinaire, unpractical, pedantic; term used of persons relying on theory and out of touch with human nature. The word is French, and the name of a French political party in 1815
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Sirius, July—August. Hot weather
usually marks the period which is
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madness among dogs. The dog days
begin July 3, and end August 11
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Thames waternen founded by Thomas
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D.L. stands for Deputy Lieutenant
D. Lit. stands for Deputy Lieutenant
D. Lit. stands for Dead Letter Office
Dnieper. River of South Russia.
Rising in the Valdai Hills, it drains
200,000 square miles, much of it within the corn-growing Ukraine, famous for its rich black earth. It passes Smolensk, Kiev, and Ekaterinoslav, and falls into the Black Sea near Kherson. The Desna, Pripet, and Beresina are its largest tributaries. 1330 miles at Klev, 6025
Dniester. River rising in the Carpathians, in Poland, and flowing between Russia and Rumania into the Black Sea. 650 miles
Dobereiner's lamp, for producing an instantaneous light by throwing a jet of hydrogen on spongy platinum, which becomes red hot and ignites gas
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Dol. Picturesque old city of Brittany, France, with a fine thirteenth-century cathedral. (4000)
Dolce far niente, Italian for Sweet

idleness

idleness
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the Dominican order; born Calahorra,
Castile, 1170; died Bologna 1221:
see pages 1387, 1385
Dominica. British West Indian island,
largest of the Leeward group; area
200 square miles; population 37,000;
capital Roseau (7000). It produces
limes, cocoa, coconuts, oranges, spices,
and coffee, and has thermal springs
and a boiling lake
Dominican Republic. Oldest European
settlement in the West Indiae; area
19,300 square miles; population
900,000; capital Santo Domingo
31,000). Founded by Columbus as
Hispaniola in 1496, it occupies the
same island as Haiti, from which it
broke away in 1844. Sugar, cocoa,
coffee, tobacco, mahogany, hides,
turtle-shell, and cotton are exported
Domines, games played with, 1868
Domitia, Roman emperor; born
Rome A.D. 51; reigned A.D. 81–96
portrait, 2878
Domitila, St., catacomb at Rome, 444
Dom Pedro, emperor of Brazil, amazed
by telephone, 1847
Don. Salmon river of Aberdeenshire,
rising near Ben Avon and flowing into
the North Sea. 82 miles

Tributary of the Yorkshire Ouse

Don. Tributary of the Yorkshire Ouse on which Doncaster stands. Sheffield is on its tributary the Sheaf Don. River rising south of Moscow and sweeping through central Russia into the Sea of Azov. It passes Voronesh, Novo Teherkask, and Rostov, and drains 166,000 square miles, its chief branch being the Donetz. 1125 miles Donatello, Florentine sculptor, one of the chief creators of sculpture in Italy; born Florence about 1386; died there 1466: see page 4720 great influence on art, 4522 lovely Singing Gallery at Florence, 4523 Pictures of Donatello's Sculptures Annunciation, in Florence, 4725 Childhood, 4897
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Doncaster. Town in the West Riding of Yorkshire, on the Don. An important railway centre, it has a great coal traffic and manufactures iron. 55,000
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Donegal. Rugged western county of

portant ranway centre, it has a great coal traffic and manufactures iron. 55,000

Donegal. Rugged western county of Uster; area 1860 square miles; population 170,000; capital Lifford Barnesmore Gap, 3069
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Dorpat. Or Tartu, old Esthonian city, having a university founded in 1632. 50,000: see page 6022
Dorset. Southern English county; area 977 square miles; population 228,000: capital Dorchester. Agriculture and dairy farming are the chief occupations, but there is a large export of building stone from the islands of Portland and Purbeck. Poole, Weymouth, and Swanage are ports, and Wareham, Bridport, Sherborne, and Wimborne interesting old places coral reefs, 1508
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20,000
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Many of them emigrated to Canada to escape persecution in Russia.
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Douro. River of Spain and Portugal. Rising in the Pico de Urbion, it flows into the Atlantic below Oporto, passing Soria and Zamora in Spain and an important wine-growing district in Portugal. 485 miles long, it is navigable for 90 miles, and has a basin of 37 500 search wiles 5275 5408

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Dover. Kentish port on the Strait
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steamship traffic with Calais. The
Roman Dubris, and later chief of the
Cinque Ports, it was very important
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has a fine Norman keep. 40,000
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Dove River. Beautiful river flowing
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into the Trent. Here is Izaak Walton's
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Dovey. River of North Wales, rising
in Aran Mawddwy and flowing through
Montgomeryshire and between Merionethshire and Cardiganshire into Cardi-

ethshire and Cardiganshire into Cardigan Bay. 30 miles

gan Bay. 30 miles
Dovrefeld. Norwegian mountain
plateau culminating in Sneehätten,
7600 feet
Dow, Gerard; see Dou
Down. Maritime county of Northern
Ireland; area 957 square miles;
population 204,000; capital Downpatrick. Cotton and flax spinning
and the manufacture of linen and
muslin are leading industries, Newry
and Newtownards being among the
chief towns. Here are the Mourne
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Downpatrick. Cathedral city and capital of Co. Down, Northern Ireland.

capital of Co. Down, Northern Ireiana. (3200)
Downs, The. Sheltered North Sea roadstead lying between the Goodwin Sands and the Kentish coast
Down under. Popular phrase meaning "below" the Equator; used of Australia and other places in southern letitudes

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Dr. stands for doctor or debtor
Dragoman, interpreter to an embassy or consulate in the Near East; also an agent for travellers. The word is from the Arabic

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Dravidians. Inhabitants of the greater part of the Decean, India, where they form such nations as the Tamils, Kanarosa, and the Tellyurs. Park, breathers.

rorm such matons as the Talmis, Kanar-ese, and the Telugus. Dark, broad-nosed, thick-lipped, curly-haired, and long-headed, they are a puzzle to ethnologists, or students of races, but are generally held to be representatives of primitive Australoid man

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art collections and fine buildings, and
has extensive manufactures. Dresden
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(Latin, Doctor Scientiae)
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Distinguished Service Order
d.s.p. stands for He died without issu;
(Latin, Decessit sine prole)

(Latin, Decessit sine prole)
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Dumbartonshire. Western Scottish county; area 267 square miles; population 151,000; capital Dumbarton. Here is the western shore of Loch

Lomond

Lomond
Dumfries. Capital of Dumfriesshire,
on the Nith. Tweeds and hosiery are
manufactured, and here Robert Burns
is buried. 16,000
Dumfriesshire. Border county of Scotland; area 1100 square miles; population 75,000; capital Dumfries. Here
are Nithsdale, Annandale, and Eskdale, and much fine pasture land
Dunbar. Watering-place and fishing
port in Haddingtonshire, containing
ruins of a 13th-century castle. Here
in 1650 Cromwell defeated the Covemanters

nanters

nanters
Dunblane. Watering-place on Allan
Water, Perthshire, with a 13th-century
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Dundalk, Capital, cathedral city, and
port of Co. Louth, on Castletown River,
54 miles north of Dublin. 15,000

Dundee. Third largest Scottish city and port, on the Firth of Tay, in Forfarshire. Famous for its great jute, hemp, and flax manufactures, it also has considerable shipbuilding, preserving, dyeing, and engineering industries, and is the chief centre for the British whale and seal fisheries. The remarkable Town Churches—three under one roof—have a 12th-century steeple. 170,000: see pages 213, 340 arms in colour, 4990 old steeple and churches, 1338 Dunedin. Chief manufacturing centre of New Zealand, in South Island. It is also a great university and educational centre. 75,000 town and harbour, 3561

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Durban. Commercial capital and port of Natal, with a fine modern harbour. A very handsome place, it is the greatest port on the African cast coast, and exports much coal. 146,000: 8ee page 3187
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erecting shop on railway, 3182
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Durbar. Court or council of a native
ruler in India: also an official reception or State ceremony. Specially magnificent Durbars at Delhi have marked
the proclamation of successive British
soverious as emperors of India sovereigns as emperors of India

Dürer, Albert, German painter and engraver, one of the greatest masters of etching: born Nuremburg 1471; died there 1528: see pages 280, 1188

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Durforth. Captain, Arctic Russia found with Willoughby and Chancellor, 4800 Durham. Northern English county; area 1013 square miles; population 1,480,000; capital Durham. Containing one of the chief English coalfields, it also produces iron, lead, salt, and limestone, while the shipbuilding, glass, chemical, and woollen industries are important. Sunderland on the Wear; South Shields, Gateshead, and Jarrow on the Tyne; and Darlington, Stocktonon-Tees, and West Hartlepool are the largest towns
Durham. Capital of Durham, on the Wear. The cathedral, founded in the 11th century, is one of the finest in England, while the ancient castle is the headquarters of a university. 17,500: see pages 3423, 5866
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54,910,700 137,199,450 Total Land Area Total Ocean Area

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Huguenots in possession of their places of worship after-capture of La Rochelle Edict of Nantes, (1598), religious ircedom in Frunce established, 3922 - Edinburgh, Capital and second largest city of Scotland, on the Firth of Forth. An important commercial and educational centre, it is one of the finest and most historic places in Great Britain, among its many famous buildings being the castle, Holyrood Palace, the Tolbooth, the cathedrals of St. Giles and St. Mary, John Knox's house, and picturesque ancient houses in the Lawimarket and Canongate. The university, founded in 1583, has a famous medical school. Milcolm III moved his capital here from Dunfermline about 1060; and during the Middle Ages the city was a great rallying point against the English. It now includes the port of Leith on the Firth of Forth. 420,000 Arthur's Seat, 213, 2245 foundation in 7th century, 588, 2777 Heriot's hospital attributed to Inigo Jones 6241

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Here Napoleon was exiled in 1814: see
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Elbe. German river rising in Bohemia
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an immense trade. The Moldau, Eger,
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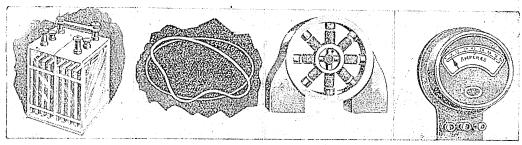
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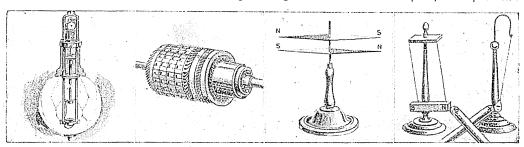
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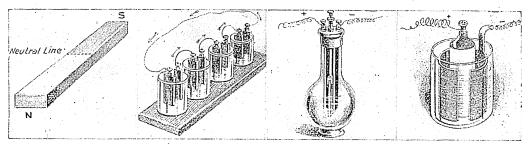
# ABC OF ELECTRICITY



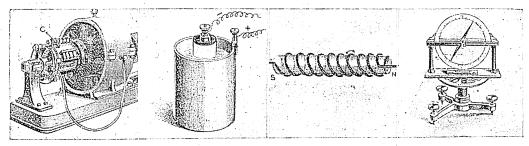
ACCUMULATOR—An apparatus which, once charged, can be used for a long time as a source of electrical current; also called a storage battery. ACLINIC LINE—An imaginary irregular line joining those places on the Earth where the magnetic needle as no dip. ALTERNATOR—A machine which produces an alternating current of half-waves, equal in strength but opposite in direction. AMMETER—An instrument for measuring the strength of electric currents in ampères; an ampère-meter.



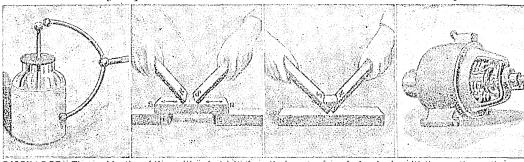
ARC LAMP—A light formed by passing a current between two carbon points slightly separated. ARMATURE—A core of metal surrounded by a coil of wire rotating near the poles of a magnet in an electric machine. ASTATIC NEEDLE—A magnetic needle not affected by the Earth's magnetism by having a second needle rot entrailse the first. ATTRACTION—The drawing towards one another of objects charged with different kinds of electricity or magnetism; thus. North pole attracts South.



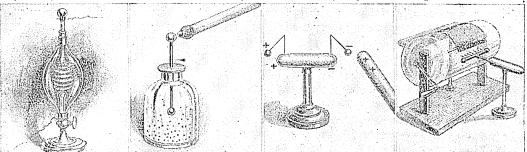
BAR MAGNET—A bar of castiron or steel hardened, tempered, and magnetised. It has a magnetic axis, two poles, and a neutral line. BATTERY—A number of cells arranged together to give a powerful current. BICH ROMATE CELL—A cell with a plate of zinc between two of carbon, in a liquid of a solution of bichromate of potash in weak sulphuric acid. BUNSEN CELL—This cell has an outer vessel with dilute sulphuric acid and the zinc, and an inner with nitric acid and a carbon rod.



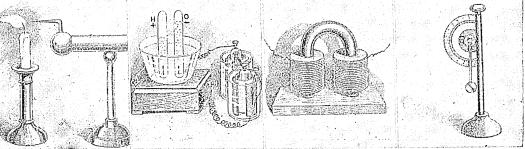
COMMUTATOR—An apparatus for changing the direction or varying the strength of the current in a dynamo or motor (marked C in picture). DANIELL CELL—A cell consisting of an outer jar of copper containing copper sulphate solution, with a porous jar inside of sulphuric acid and a zinc plate. DEXTRORSAL HELIX—A right-handed coil of insulated wire. If a current be passed through this the steel bar inside will be magnetised, its North pole being at the end where the cell joins the zinc of battery. DIPPING-NEEDLE—A vertical magnetic needle used for showing the direction of the Earth's magnetism.



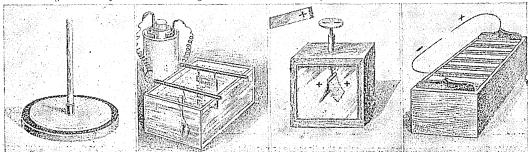
DISCHARGE—The combination of the positive electricity from the inner surface of a Leyden jar with the negative on the outer surface by means of a discharging rod. DIVIDED TOUCH—The magnetising of a bar of iron or steel by placing it as shown on opposite poles of two equal magnets, and then from the middle drawing the opposite poles of two other magnets several times to the ends. DOUBLE TOUCH—Magnetising a bar with two magnets, the North pole of one being fastened to the South pole of the other. Starting in the middle, they are drawn along the barseveral times, ending at the middle. DYNAMO—A machine for producing electric currents by work. An electro-magnet is used, and the principle is that of magneto-electric induction



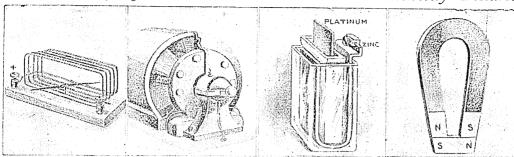
ELECTRIC EGG—An apparatus consisting of a glass vessel shaped like an egg, in which the air can be rarefied and beautiful effects obtained by passing a current through. ELECTRIC HAIL—The dancing of small pith balls placed in a glass jar between two metal plates, charged respectively with positive and negative electricity. ELECTRIC INDUCTION—The process by which the electricity in one body acts on the neutral electricity of another body, attracting the opposite and repelling the like kind of electricity. ELECTRIC MACHINE—A machine for generating frictional electricity, such as a glass cylinder with silk rubbers.



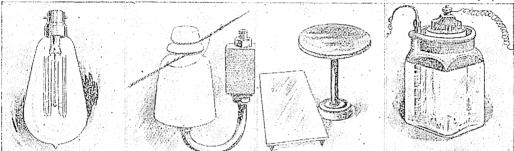
ELECTRIC WIND—Air movement caused by the repulsion of electrically charged air from a point on a charged conductor whence electricity is escaping. ELECTROLYSIS—The splitting up of a liquid by passing a current through it. In water oxygen is liberated at the positive pole and hydrogen at the negative. ELECTRO-MAGNET—A piece of soft iron round which a current is passed by means of a coil of insulated copper wire. This magnetises the iron. ELECTROMETER—An instrument for measuring the intensity of an electrical charge. It consists of an electric pendulum with a wooden rod, on which is a scale.



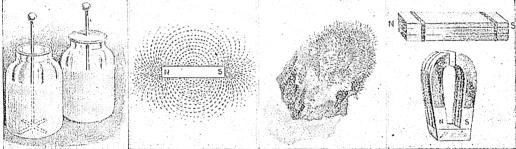
ELECTROPHORUS—An apparatus of glass, sealing-wax, and brass, by which a small quantity of free electricity can be made to supply a large quantity. ELECTRO-PLATING—The covering of base metals with a coat of gold or silver by suspending the object to be plated in a solution of the metal and connecting with an electric battery. ELECTROSCOPE—An apparatus with two thin gold leaves for detecting the existence of feeble charges of electricity. GALVANICTROUGH—A similar apparatus to the voltaic pile, described on page 7206, but horizontal instead of perpendicular, and having rectangular plates in a trough.



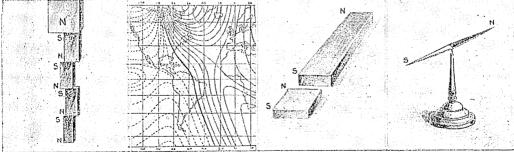
GALVANOMETER—An instrument for measuring the strength of a current of electricity by testing it on a magnetic needle, which it deflects. GENERATOR—An apparatus that transforms heat or work into electrical energy. Modern generators are elaborate. GROVE CELL—A cell of non-conducting material, containing weak sulphuric acid, in which is a bent sheet of zinc folded round a flat, porous cell containing strong nitric acid with a platinum plate. HORSESHOE MAGNET—A magnet in the shape, more or less, of a horseshoe. It is the best form for lifting, but the bar magnet is best for other purposes.



INCANDESCENT LAMP—A glass globe with a vacuum inside, and a filament of carbon which is rendered white hot by the passage of a current. INSULATING STAND—A term usually applied to the earthenware attachment by which the wires are fastened to telegraph and telephone poles. INSULATOR—A support of glass or other non-conducting substance, on which a body may be placed to cut it off from the passage of electricity. LECLANOHE CELL—A glass jar with a sal-anumoniac solution and a rod of zinc, and in the jar a porous cell with a carbon plate packed in with pounded carbon and black oxide of manganese.



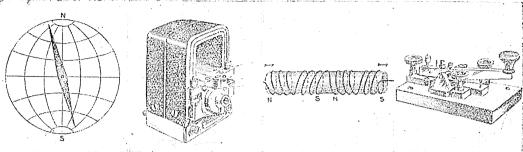
LEYDEN JAR.—A simple form of accumulator or condenser, consisting of a jar coated inside and out with tinfoil to within a few inches of the top. A brass rod and knob are connected with the tin inside. LINES OF FORCE—The curved lines in which fine iron filings form round a magnet when sprinkled on a sheet of paper over the magnet. LOADSTONE—A piece of iron ore which forms a natural magnet and attracts iron filings. Some are very powerful. MAGNETIC BATTERY—A combination of magnets, bar or horseshoe, joined together so that their similar poles are adjacent for the purpose of giving added power.



MAGNETIC CHAIR—A bar magnet with a series of pieces of soft iron adhering together under the influence of the magnetic induction. MAGNETIC CHART—A map of the world with lines joining those places where the declination of the magnetic needle is equal. These lines are called isogonic lines. MAGNETIC INDUCTION—The conversion of a piece of ordinary iron or steel into a magnet by being brought into nearness to a magnet as shown here. MAGNETIC NEEDLE—A light piece of flat steel magnetised and mounted so that it can easily turn in any direction. It normally rests pointing North and South,

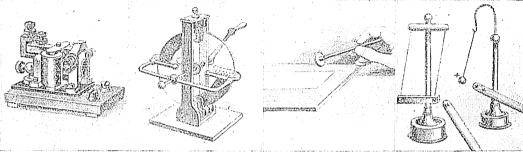
#### Children's Encyclopedia

#### Electricity Pictures

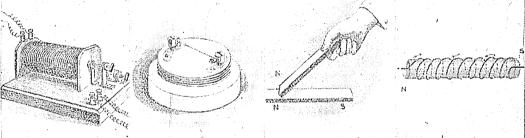


MAGNETIC POLES—Two nearly opposite points on the Earth's surface where the dip of the magnetic needle is ninety degrees.

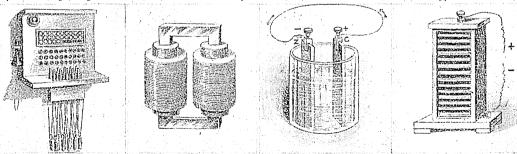
MAGNETO—An electric generator in which the magnet used is a permanent one. The latest form has an electro-magnet, and is called a dynamo. MIXED HELIX—A coil alternately right and left handed, which, when an electric current is passed through, magneties a steel rod inside, with North and South points between the extremes. MORSE KEY—The sending instrument of a telegraph, which, by being moved up and down, starts and stops the current and works the receiver at the other end.



MORSE SOUNDER—The receiver of a telegraph, which, by the alternate magnetising and demagnetising of a horseshoe magnet, causes a lever to move up and down with a click. PLATE MACHINE—A machine for generating frictional electricity by the rubbing of silk on a disc of glass, the machine being kept warm and dry. PROOF PLANE—A metallic disc with an insulated handle, used for measuring the density of electricity over the surface of a conductor. REPULSION—The driving away of an object with one kind of magnetism (North or South pole) or electricity (positive or negative) by a body charged with a similar kind.



RUHMKORFF'S COIL—An instrument for generating currents of electricity by electro-magnetic induction. It consists of two coils of insulated wire enclosing an iron core. SAFETY FUSE—A short length of wire through which passes the current to an electric lamp. If the current should be too strong for the lamp the fuse melts, and in consequence saves the lamp. SINGLE TOUCH—The magnetisation of a bar of iron or steel by drawing along it ten or twenty times, always in one direction, one pole of a powerful bar magnet. SINISTRORSAL HELIX—A left-handed coil of wire, which, when a current is passed through, magnetises a bar of steel with the North pole at the end of the coil connected with the copper of the battery.



SWITCHBOARD—A device by which various currents in telephony, and so on, can be connected and disconnected with ease. TRANSFORMER—A form of induction coil or Ruhmkorff coil used to change an electrical current of high strength to one of low power, or vice versa. VOLTAICCELL—A vessel containing a plate of copper and a plate of zinc, rubbed over with mercury in weak sulphuric acid, and joined by a copper wire. VOLTAIC PILE—A pile of discs of copper and zinc alternately placed and soldered together in pairs, with cloth or paper moistened with acid between the discs, used in charging electroscopes, and so on.

in the life of a seed, 1616 Oliver Lodge's definition. 1614 Sun as a source of energy, 2618, 3208,

5443 sculptures, 1613, 1615, 4772. En fête, French for Keeping holiday — Engadine. Valley in the Swiss canton of Grisons, traversed by the Inn. Here are St. Moritz and Pontresina

Grisons, traversed by the Inn. Here are St. Moritz and Pontresina
Engine: see Atmospheric engine, Internal Combustion engine, Railway engine, Reciprocating engine, Steam engine, Beam Turbine Engine-room, liner's engine-room, 3705 England. Southern and largest country of Great Britain; area 50.900 square miles; population 35,700,000; capital London (7,500,000). Divided from Scotland by the Cheviot Hills, it contains in the north the Lake District, the Pennine Chain, and the Cumbrian Mountains, with Scawfell Pike (3210 feet); the centre and east are generally flat, and the south largely undulating downland. The largest rivers are the Thames, Severn, Trent, Great Ouse, and Yorkshire Ouse, but the Tyne, Tees Lower Avon, and Mersey are among the most important. The chief industrial areas are in the North and North Midlands, where coal is found lover a large area. Northumberland and Durham are famous for their shipbuilding and chemical trades; Laneashire for cottons and engineering; Yorkshire for woollens, worsteds, iron, building and chemical trades; Lancashire for cottons and engineering; Yorkshire for woollens, worsteds, iron, and steel; Cheshire for salt; and the Midlands for hardware, pottery, hosiery, and lace. London, however, is easily the most important commercial centre, while agriculture and stock-raising flourish almost everywhere. There are valuable North Sea fisheries. The greatest industrial centres are Birmingham (920,000), Manchester (735,000), Sheffield (520,000), Lectopol (805,000), Bristol (380,000), Hull (200,000), Newcastle-on-Tyne (280,000), Portsmouth, Plymouth, Southampton, Sunderland, and Birkenhad, are famous as ports. England is

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Empire, and Great War
English. The people of a composite race
who inhabit England. The prevailing
race is long-headed, descended from the
Nordie Saxons and their kindred
peoples from northern Europe. The
short, dark, Mediterranean Iberians
and the tall, round-headed Celtic
descendants of the Bronze Age have
been absorbed by these Anglo-Saxons.
The amalgamation of the stolid, just,
sympathetic, haughty and dominating
Saxon and the quick-witted, imaginative, impulsive and mercurial Celt
has produced a people of over 120
millions, who inhabit the United States
of America, Canada, Australia, New of America, Canada, Australia, New Zealand and South Africa, as well as

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England and France. 350 miles long,
it is 100 miles wide at its Atlantic
entrance, but narrows to 20 miles at
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English Shire herse, 1892
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Enniscorthy, Market town of Co.
Wexford, Ireland, on the Slaney. It
has a cathedral and a 12th-century
Norman castle
Enniskillen. Capital of Co. Fermanagh,

Aorman castle Enniskillen. Capital of Co. Fermanagh, Northern Ireland, on the Erne. 4800 Ennius, Quintus, Roman epic poet and historian; born Rudiae, Calabria, 259 B.C.; died probably Rome 169 nee page 5426

page 5420 Enns, Austrian town with walls built with Richard I's ransom, 4546 En passant, French phrase meaning In passing; by the way; also a term used in chess

Entail, settlement of a landed estate in such a way as to prevent its being bequeathed at the pleasure of the

owner Entebbe. Administrative capital

Entebbe. Administrative capital of Uganda, on the north shore of Lake Victoria Entente, understanding between Britain, France, and Russia, 4050 Entente cordiale, French for Good understanding: friendly agreement arranged by King Edward VII between France and England

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Enterprise, first steamship to make
London-Calcutta voyage, 3738
Entre nous, French for Between

Enteromorpal, Setweet, 3415
Enterorise, first steamship to make
London-Calcutta voyage, 3738
Entre nous, French for Between
ourselves
Entrepot, French term for a warehouse
where imported goods are stored pending payment of duty; generally a town
or seaport through which they pass on
their way to another destination
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born Hierapolis, Asia Minor, about
A.D. 50: died Nicopolis, Epirus, after
A.D. 117; once a slave in Rome: see
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Epidote, mineral, 1303
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Epithalamion, Spenser's poem, 742
Epsomite, or Epsom salts, 1304
Epstein, Jacob, British sculptor, of
Russo-Polish descent; born New York, 1880: see page 4896
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why is it hotter at the Equator than in England? 1047
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Equatorial telescope, one that can be turned upon any heavenly object and be made to follow it in its movements
Equilibrium, three libras with victures. Equilibrium, three kinds, with picture,

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Erasmus, Desiderius, Dutch classical scholar and theologian, translator of the New Testament and friend of More and Colet; born Rotterdam 1466; died Basle 1536; see pages 3760, 4954, 7050
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Erect gracilaria, seaweed, 3416
Erfurt. Ancient cathedral city and textile-manufacturing centre in central
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Erg, definition of: see Weights and
Measures, units of measurement
Ergot, rye attacked and cattle infected
by it, 1698
Ericson, Leif, surnamed the Lucky,
Viking adventurer; lived about 1000:
landed in America, which he called
Vinland
Ericsson, John, Swedish naval engineer

landed in America, which he called Vinland Eriesson, John, Swedish naval engineer; born Fernebo, Wermland, 1803; died New York 1889; inventor of the screw-propeller for steamships. 3738 ironclad designed by, 3737 portrait, 3733 Eric the Red, Greenland named by, 3027, 6482 Erie, Lake, Southernmost of the Great Lakes of North America, lying between Ontario, Canada, and the American States of New York, Pennsylvania, and Michigan. 10,000 square miles in extent, it is 250 miles long and 60 miles broad; it is frozen in winter between December and April, but the Welland Canal, which avoids Niagara, allows navigation between Eric and Ontario throughout the summer. Toledo, Sandusky, Cleveland, and Buffalo, all in U.S.A., are the chief ports Erigeron: see Blue fleabane Eris, classical goddes: of discord, 3519 Eritrea. Italian territory on the Red Sea, occupied in 1889. It exports hides, butter, palm-nuts, gold, ostrich

feathers, and mother of pearl. Its feathers, and mother of pearl. Its capital, Asmara, is connected by rail-way with the port of Massawah. Population 450,000: see page 6749 Erivan. Capital of Armenia, on the Sanga. 90,000 Erlau, or Eger. Hungarian cathedral city, trading in wine. 30,000 Ermine, uses of the fur, 793 picture, 789

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Escurial. Palace built by Philip II in
the 16th century. It is in the shape of
a gridiron, in memory of St. Lawrence, who was martyred on a gridiron. Stand-

a gridiron, in memory of St. Lawrence, who was martyred on a gridiron. Standing among wild mountains north-west of Madrid, it is an immense building with a forbidding aspect, 5410 library in, 6364 view of building, 6368

Esk. River flowing through Dumfriesshire and Cumberland into Solway Firth. 35 miles

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making centre, headquatters in the Rühr coalfield of the Krupp engineering works. 440,000: see page 4426
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Essex. South-eastern English county; area 1530 square miles; population 1,470,000; capital Chelmsford. Mainly agricultural, it contains several suburbs of London, among them West Ham, East Ham, Leyton, Hord, and Walthamstow. Tilbury and Harwich are important as ports, and Southend and Clacton as watering-places; other towns are Colchester and Romford Saxon settlement, 587
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Estella, Sierra d', Portuguese mountain range, 5270
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Esther, how she saved her people, 3225
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pleading for her people, 3224
supposed tomb at Hamadan, 6303
Esthesiometer, compass-like instrument for measuring the degree of sensibility in the touch

Esthonia. European republic bordering the Baltie; area 17,000 square miles; population 1,110,000; capital Reval (125,000). Mainly agricultural, it produces rye, oats, flax, and barley, but there are oil-seed, sugar, textile, to-bacco, and petroleum industries. Dorpat, Narva, and Pernau are the chief towns: 1713, 3021 lag in colour, 4010 scene in Reval, 6026

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Et cetera, Latin for And so on; and other things; usually written etc.

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Ethandun, battle of, fought in 879 in Wiltshire between the Danes and Alfred the Great. The result was a great victory for Alfred, who concluded the famous Treaty of Wedmore with his defeated foes

Ethelbert, St., king of Kent, was, with

his defeated foes
Ethelbert, St., king of Kent, was, with
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Etna. Volcano in Sicily which covers 400 square miles and has about 200 minor cones. 10,755 feet. 2245, 4912 effect of cruption, 2248
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size compared with giant seaweed, 700 Eucleides: see Euclid Euclid, Greek geometrician; lived Alexandria about 300 B.C.: see 3119 his famous book, The Elements, 986 portrait, 3119 Euclid of Megara, Greek philosopher a pupil of Socrates; founded the Megaric school of philosophy about 399 B.C.: see pages 3129, 4837 addressing his pupils, 3123 Eugene, Prince of Savoy, Austrian general in the war of the Spanish Succession; born Paris 1663; died Vienna 1736; freed Hungary from the Turks, 4297

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Eupetaurus cinereus, flying squirrel, characteristics and home of, 1034
Euphranor, Greek sculptor, 4270
Euphrates. Longest river of western Asia, rising in the Armenian highlands and flowing into the Persian Gulf. Babylon stood on its banks, but the country through which it passes is now arid and inhospitable. The Shatt-el-Arab, the joint estuary of the Euphrates and Tigris, has the port of Basra. 1700 miles
Euphronios, vase painter of ancient

and Tigris, has the port of Basra. 1700 miles
Euphronios, vase painter of ancient
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Eureka, Greek for I have found it;
discovered at last. Made popular by
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Euripides, Athenian tragic poet; born
Salamis about 480 B.C.; died in Macedonia 406; writer of 75 plays: see
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Europe. Second smallest, but most
important of the continents, having
well over a hundred people to the
square mile. Its area is estimated at
3,800,000 square miles and its population at about 480 millions. The most
remarkable feature of Europe is its
immense length of coastline, measuring
nearly 50,000 miles, as compared with
Africa's 15,000 miles; it has many
inland seas and large numbers of
islands. Two-thirds of its area consists
of a great plain, stretching across
northern Europe from the Ural Mountains to the North Sea; but in the north
are the mountains of Scandinavia and
in the south the great Alpine system. are the mountains of Scandinavia and in the south the great Alpine system. The Iberian, Italian, and Balkan peninsulas each have their own mountain ranges. Europe is generally well watered, and has many fine rivers, notably the Volga, Danube, and Rhine; which are all important waterways. A great part of its area is under cultivation, and large crops of cereals are grown, especially in Russia. Great Britain, Belgium, Germany, Spain, Austria, Sweden, and the Ural Mountains have great mineral wealth; Rumania, Poland, and Russia produce large quantities of petroleum. Industrially Europe is the most important of the continents, practically every country large quantities of petroleum. Industrially Europe is the most important of the continents, practically every country of western and central Europe having oxtensive manufactures. The population is fairly evenly divided between the Teutonic, Latin, and Slavonic races: the Teutons include the English, Germans, Dutch, Flemings, Danes, Norwegians, and Swedes; the Latins the French, Spanish, Portuguese, Walloons, Italians, Rumanians, and Greeks; and the Slavs the Russians, Poles, Slovenes, Slovaks, Czechs, and Serbs. The population of Ireland, Wales, Erittany, and the Scottish Highlands consists largely of Celts; while on the Continent there are several non-Aryan races, including Finns. Magyars, Turks, Tartars, Bulgarians, and Basques. The Roman Catholic Church has about 200 million European adherents, and the Protestant and Greek Orthodox Churches have each well over 100 million. Of the 27 European States 1 are kingdoms and 14 republics, while Ireland is a self-governing dominion of the British Empire British Isles once joined to Continent, 5248 flags, 2408

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British Pacific islands; area 7080
square miles; population 160,000; capital Suva (13,000). The soil is volcanic and fertile, producing coconuts, sugar, cotton, caeao, yams, rice, maize, banamas, tobacco and rubber, and cattle, goats, and horses are reared. Nearly half the people are Hindu immigrants, but most of the natives are Christians, 3421, 3422
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Spain Finland. Republic of northern Europe Finland. Republic of northern Europe cordering the Gulfs of Bothnia and Finland; area 145,000 square miles; population 3,400,000; capital Helsinki, or Helsingfors (200,000). Once Swedish, it belonged to Russia from 1808 to 1918, when it declared its independence. It is a land of lakes and forests, its timber, wood-pulp, and paper industries being especially important, while barley, rye, oats, and potatoes are produced. Abo (Turku), Viborg, and Tavastehus are the chief towns, 1713, 6021

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Government under the Sultanate: also a licence to engage in a particular trade or undertaking
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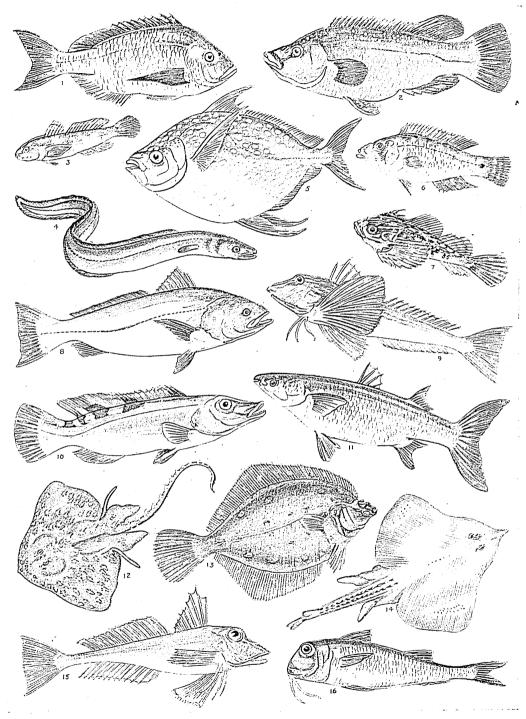
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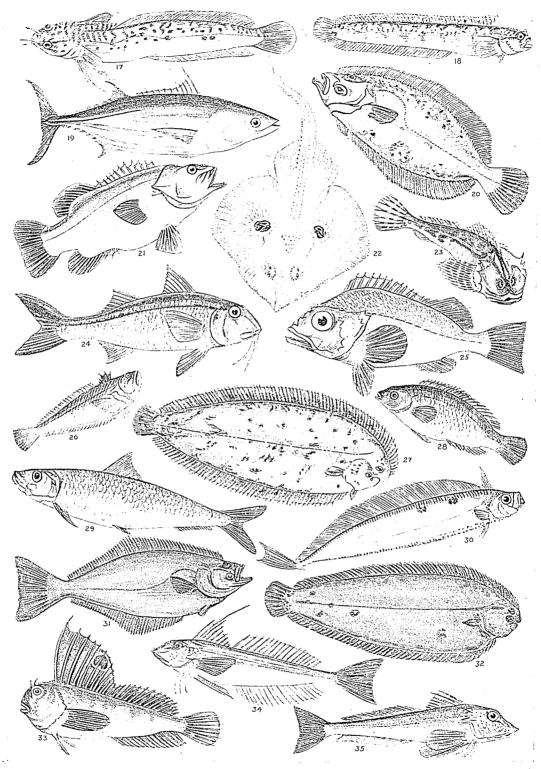
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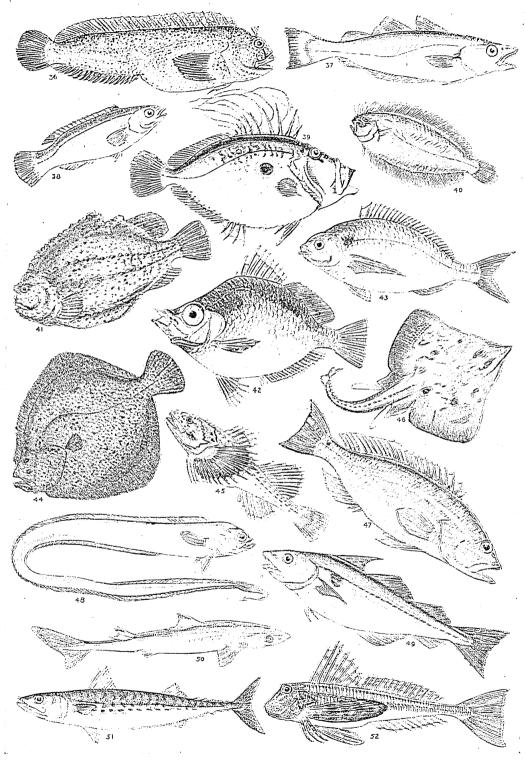


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Flint. County of North Wales: area

Flint. County of North Wales ; zunt. County of North Wales; area 255 square miles; population 106,000; capital Mold. Other towns are Rhyl and Flint, and coal, lead, and iron are mined

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Flores, Azores, Grenville's last fight, 5208 Florican, Bengal, bird, 3869 in colour, 3264 Florida. Southernmost American Atlantic State; area 58.700 square miles; population 1,000,000; capital Tallahassee. It has a lovely climate and luxuriant vegetation, though much of it is covered with swamps and forests, in which live panthers, bears, wolves, raccoons, alligators, turtle, and manatees. In the cultivated regions cotton, sugar, tobacco, and many kinds of fruit flourish amazingly Jacksonville, Pensacola, Tampa, and Key West are the chief towns; Palm Beach and Miami are famous winter resorts. Abbreviation Fla., 1020 diver gathering sponges, 1292 Long Key Island, scene, 3807 natural features, 3687 sponge industry, 1292 State flag, in colour, 2410 Florin, invented by Sir J. Bowring, 1760 Florizel, Prince, in Shakespeare's A Winter's Tale, 6052 Flounder, life-story of, 5105 fish in colour, facing 5101 Flowering rush, classification 6008,6497 picture, in colour, 6129 Flowerless plant: see Cryptogam

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f.o.b. stands for Free on board, term used in shipping
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Brest, Lorient, St. Nazaire, La Rochelle, Rochefort, and Cette. France is especially noted for its fine scenery and resorts, among which are the Riviera towns of Nice (160,000) and Cannes, with Trouville, Biarritz, Viety, and Aix-les-Bains. It was divided into provinces up to the Revolution, since when it has been divided into S7 departments. The French colonies cover 4,550,000 square miles and have a population of 67,000,000: see 4162 history before the Revolution, 3917 history from the Revolution, 4043 France as it is Today, 4163 Alsace-Lorraine, 4049, 4050 architecture: see French architecture art: see French art Attila's invasion, 2156 beet-sugar production, 5107

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of whom more than half are Roman
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of States of which Prussia, Bavaria,
Wurtemberg, Baden, and Saxony are
the chief, and is the most important
manufacturing country of the European the chief, and is the most important manufacturing country of the European continent. having nearly 50 towns with over 100,000 people. In 1912 its annual mineral produce was valued at nearly £600,000,000, the coalfields of the Rühr and Saar valleys, Saxony, and Upper Silesia being especially important, though iron, lead, zinc, silver, and salt are also mined. Rye, wheat, sugarbeet, wine, and potatoes are the chief

crops, and textile, engineering, chemical, paper, iron, steel, and hardware the chief manufacturing industries. Among the greatest towns are Berlin (3,850,000), the capital, Munich (640,000), Leipzig (600,000), Dresden (590,000), Cologne (650,000), Breslau (530,000), Frankiott (435,000), Disseldorf (410,000), Nuremberg (350,000), Hanover (400,000), Magdeburg (300,000), Stuttgart (310,000), Chemitz (300,000), and Mannheim (230,000). The greatest ports are Hamburg (1,050,000), Bremen (320,000), Königsberg (250,000), Bremen (320,000), Kionigsberg (250,000), Bremen (320,000), Kionigsberg (250,000), and Lübeck (120,000); see page 4421 history of Germany, 4291 African possessions surrendered, 3188 architecture and art: see German architecture and art: see German architecture and art: see German architecture and art. See German language and German literature mythology of race, 4696 Napoleonic wars, 4297 once united with France. 2521 overseas empire. 1706 population, 2041, 4422, 5863 Prussian militarism, 4624 railways, 3950 salt deposits, 1540 value of mark (in 1924), 5392 flags in colour, 4010 scenes, 2498, 4423, 4429–36 Maps of Germany animal life of the country. 4306 general and political, 4312 industrial life, 4308 physical features, 4304 showing historical events, 4310 See also Great War: and names of States and towns Germ plasm, what it means, 4129 Gernode Abbey, Germany, Romanesque architecture, 5746 Gerona, ancient cathedral city in Catalonia, Spain. 20,000: see 5994 Gerrode Abbey, Germany, Romanesque architecture, 5746 Gerona, ancient cathedral city in Catalonia, Spain. 20,000: see 5994 Gertrude, St., patron saint of travellers, who provided many hostels

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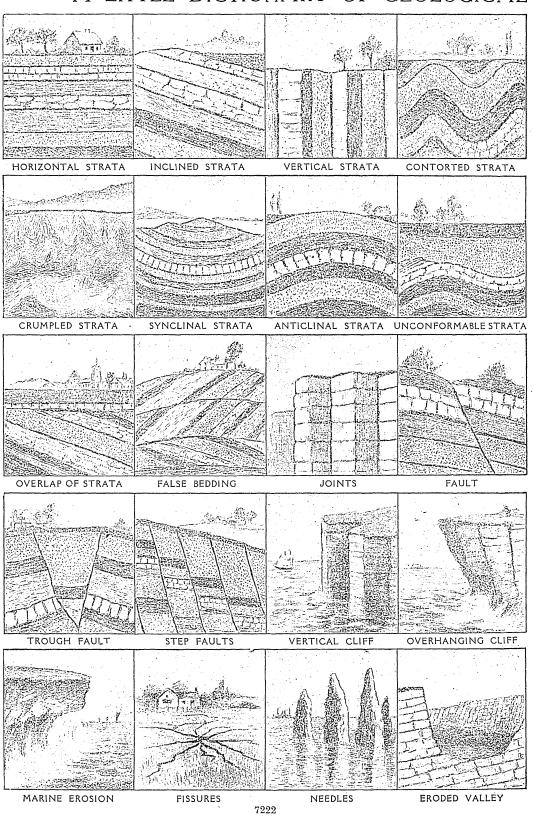
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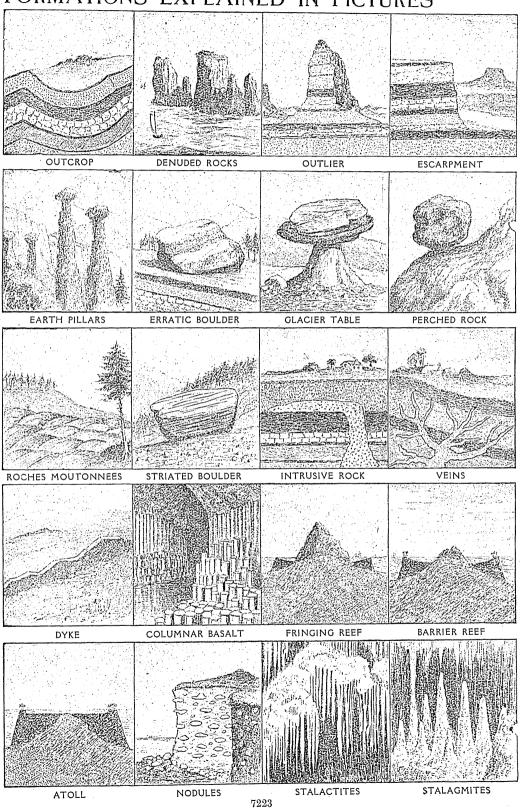
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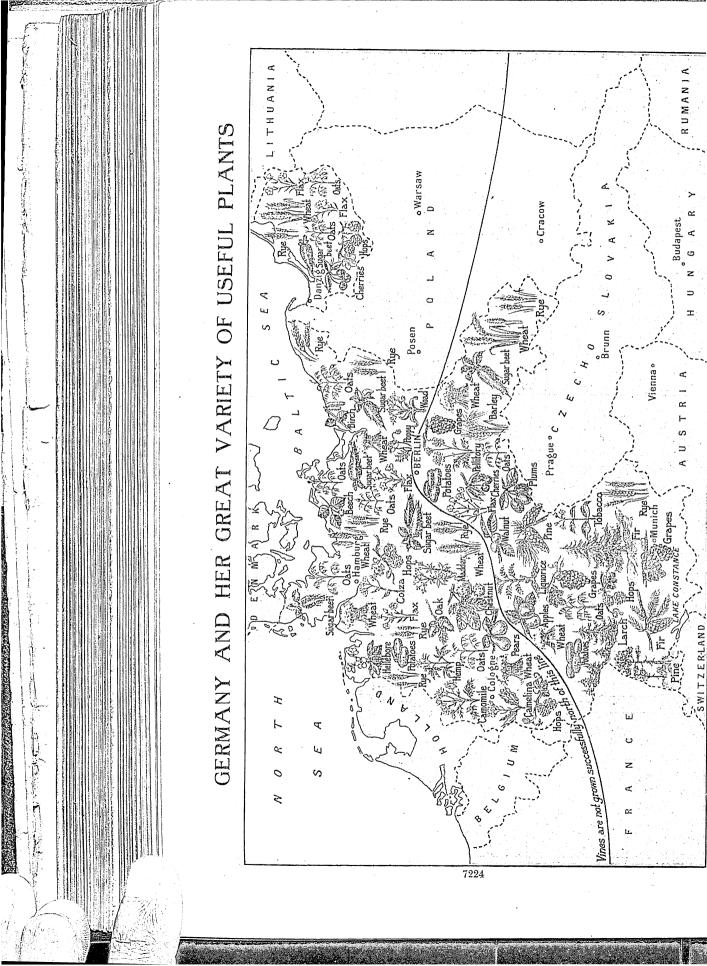
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port, and second largest in Great
Britain. Standing on the Clyde, 23
miles from its mouth, it is in the heart
of the iron and coal mining district of
western Scotland, of which it is the
commercial and railway centre; the
Clyde has been deepened so that large
ships can penetrate into the city.
Shipbuilding, iron-lounding, engineering, and the making of locomotives are
all important, but there are also textile,
rubber, chemical, glass and many other all important, but there are also texale, rubber, chemical, glass and many other manufactures, while the shipping trade is considerable. The cathedrai of St. Mungo was begun in the 12th century, and the university founded in 1450.

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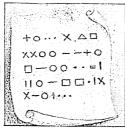
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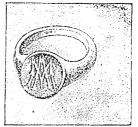
AUTOGRAPH writing; one' signature



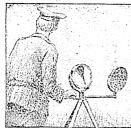
CRYPTOGRAPH
A hidden writing; something
in a secret code



EPIGRAPH A writing upon; an in-scription carved on stone



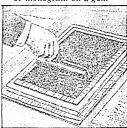
GLYPTOGRAPH an in- A carved writing; an initial a stone or monogram on a gem







HELIOGRAPH IDEOGRAPH LITHOGRAPH MIMEOGRAPH sun writing; an apparatus An idea writing; a symbol A stone writing; a design in A mimic writing; an apport flashing messages by for an object thought of, as one or many colours printed paratus for duplicating letters sunlight from a mirror Egyptian hieroglyphics from a lithographic stone or trade lists





MONOGRAPH
A single writing; a book
or pamphlet on a single



PARAGRAPH
A writing beside; a division
of a page, formerly with a
marginal note

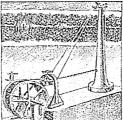


PHONOGRAPH
A voice writing; an ap- A light writing; a picture paratus which reproduces the or design reproduced by the human voice action of light

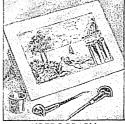




SCIAGRAPH



SEISMOGRAPH A shadow writing of any kind, An earthquake writing; an insuch as an X-ray photograph strument to record earthquakes



SIDEROGRAPH
An iron writing; an engrav
ing on a steel plate.



SPHENOGRAPH wedge writing; an Assyrian cuneiform inscription



STEREOGRAPH A solid writing; a double photograph looking real through a stereoscope



TELEGRAPH A far writing; a device for sending messages over a distance





XYLOGRAPH ZINCOGRAPH
A wood writing; an en- A zinc writing; an etchgraving on wood or a print ing on zinc or a print from
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with a famous hospice near its summit. \$120 feet
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that the human body cannot sink in it, and the evaporation of its salt has become an important industry. On its shores is Salt Lake City picture, 3586
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Greene, Albert Gorton: for poem see Poetry Index Greene, Robert, English poet and prose writer, one of the founders of English romantic comedy and fiction; born Norwich 1560; died London in 1592 for poems see Poetry Index Greenfinch, food and habits, 2901 in colours, 2899 Green-fly, or aplis, kept by ants for honey-dew, 5963 garden pest, and picture, 5721 Green grasshopper, picture-story, 5717

Green hairstreak butterfly, with egg, caterpillar, and chrysalis, in colour, 6204 Green hangnest, bird, 2904 Green Knight, story and picture, 2885 Greenland. Huge island of North America, lying mainly within the Arctic Circle: it is remarkable for the immense ice-cap which covers its interior, the only habitable areas being narrow strips along the coast. Its area is 825,000 square miles; but the population only 14,500, mainly Eskimos; the polar bear, reindeer, and musk-ox are the chief land animals. Whale and seal oil, furs, and eiderdown are exported, and the fisheries are important. Greenland was colonised by the Norsemen in the 10th century, but the founder of the present Danish colony was the missionary Hans Egede, who settled in Godthabab in 1702. Other settlements are Godhavn, the capital, Sydproven, Christianshaab, Julianshaab, and Upernavik: 5769, 6846 Davis rediscovers Greenland, 4601 Iceland compared with, 6875

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the mouth of the Clyde. The chief
outport of Glasgow, it has extensive
shipbuilding and shipping trades.
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shipbuilding and sinpping vacco-S0,000
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gave up public office and devoted his
life to the church, being elected Pope
in 590. He founded six Benedictine
monasteries, sent St. Augustine to
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Alfred translates his Regula Pastoralis, established musical colleges in Rome,

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Guadiana. River of southern Spain and Portugal, draining 32,000 square miles. Rising in La Mancha, it flows past Merida and Badajoz into the Atlantic. 510 miles: 5270, 5402 Guam. American dependency and naval station in the Ladrone Islands, in the Pacific; area 225 square miles; population 15 000

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Hamilton. Iron and steel manufacturing centre in Ontario, Canada, trading also in textiles and tobacco. Founded in 1778 by loyalists from U.S.A., it has Anglican and Roman Catholic cathedrals. 150,000
Hamites. People of the Mediterranean type of the white race who have inhabited all Africa north of the Sudan since prehistoric times. They are divided into Eastern and Western branches—the Eastern including the Egyptians, Nubians, Abyssinians, and Gallas, and the Western including the Berbers, Tibus, and Fulahs
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Hausas. Compact race of Sudanese
Negroes who live in central and western
Sudan. They are a peaceful and industrious race of some 20,000,000 people,
whose melodious language is used in
trade from Lake Chad to the Niger.
They have proved good soldiers in
the British service
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famous trade in cigars and tobacco.
Founded in 1519, it is the largest city
in the West Indies, and has a cathedral,
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in the West Indies, and has a cathedral, many fine buildings, and a spacious and sheltered harbour. Sugar is a great export. 380,000 yellow fever's ravages, 2627 Columbus cathedral, 7005

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Gold . 53-2 Lead
Aluminium 31-3 Platinum
Zinc . 28-1 Bismuth
Tin . 15-2 Mercury Steel ... Lead ... Platinum ... .. 11.6 .. 8.5 Bismuth .. MELTING POINTS OF METALS
The fusion point of a metal is the
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Hellenes, name by which the Greeks of
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12th century B.C. and to have mingled
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Helsingfor : see Helsinki

Helsingfors, capital and

chief port of Finland, on the Gulf of

Finland. One of the pleasantest

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(2600)

dance held there each May 8. (2600)
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Henley-on-Thames. Oxfordshire mar-ket town famous as a boating centre

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population 6,900,000; capital The Hague (370,000). Flat and low, it is intersected by a network of waterways, including the mouths of the Rhine, Maas, and Scheldt, and there are about 2000 miles of canals. Agriculture, including dairy farming, cattle-raising, and the cultivation of bulbs, is very important, and there are many and varied manufactures. The ports of Amsterdam (700,000) and Rotterdam (550,000) are easily the largest towns; others are Utrecht, Haarlem, Leyden, Groningen, Arnhem, Dort, Deventer, Nijmegen, Dellt, and Flushing. Nearly all the people are Protestants. The Netherlands have always had a powerful mercantile marine, and their colonies have an area of 788,000 square miles and a population of nearly 50,000,000, chiefly in the East Indies and Dutch Guiana: 5523 art: see Dutch art beauty of landscape, 1426 coal production. 2716 colonies, 5531 independence declared, 5528 industrial rise, 5520 meaning of name, 5982 Motley's history, 4333 Protestant Reformation, 5527 South Africa colonised, 3133 Spain's domination, 1084, 3880 Pictures of Holland flags in colour, 4011 mussel bed, 5730 types of her people, 89, 5525, 5529 typical scenes, 5522, 5533, 5536 Maps of Holland animal and plant life, 5534 showing historical events, 5655

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hn, stands for Horse power

17,000
h.p. stands for Horse power
H.Q. stands for Headquarters
F.R.E. stands for Holy Roman Emperor or Holy Roman Empire
H.R.H. stands for His or Her Royal

Highness
H.R.I.P. stands for Here rest in peace; the letters stand for the Latin words.
Hie requiescat in pace
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and with the Atlantic by Hudson Strait, but is only open for navigation for three months in the year. Henry Hudson explored it in 1610 Hudson's Bay Company, a commercial corporation originally chartered in 1670 by Charles II and given proprietary rights which in 1868 were surrendered to Canada, 2074 its 10rts 2076

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especially coal and textiles. Standing on
the Humber, it has about 200 acres
of docks and birget timber veryls and is of docks and huge timber yards, and is

an important fishing port; shipbuilding is carried on, and there are manufactures

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occupying the greater part of the Great
Plain of the Danube; area 36,000
square miles; population 8,000,000; capital Budapest (930,000). Though
greatly reduced in size since 1918, it
still retains some of the most fertile
agricultural regions in Europe, and grain
of the highest quality is produced.
Agriculture and stock-raising are practically the staple industries. The
people are mostly Magyars, and nearly
all Roman Catholies; Szeged (120,000)
and Debreczen (100,000) are the
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Hunter. River of New South Wales,
Australia, rising in the Blue Mountains
and flowing past Newcastle into the

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400,000

400,000
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Iberians. The people of Mediterranean
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the first immigrants to South Europe
from North Africa, Their descendants
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under Danish sovereignty; area 41,000
square miles; population nearly
100,000; capital Reykiavik. It has
many volcances, hot springs, and
geysers, and thousands of square miles
are covered by lava flows, Heela alone
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Minor culminating in Moint Garratts, 5750 feet
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liford. Essex suburb of London, containing the districts of Goodmayes and Seven Kings. 85,000
Ilfracombe. Watering-place in North Devon, among fine cliff scenery. 12,000 view, 1718
Ili. Centre of administration in Chinese Turkestan, 6503
Iliad, The, story of Homer's poem, 5303
Helen on walls of Troy, 5305
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Iliman. One of the highest summits of the Bolivian Andes. 21,200 feet
Illinois. One of the most important American States, ranking first in the production of corn and cattle, pig, and horse-rearing, while coal is extensively mined. Chicago (2,700,000) has an immense meat-packing trade; other towns are Springfield, the capital, Quincy, and Peoria. Area 57,000 square miles; population 6,500,000. Abbreviation Ill.
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point of death
In camera, Latin for In private
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Incognito, Italian for Privately, or under an assumed name; generally written incog.
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Income Tax, what it is, 4659
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Incubus, nightmare; hence something

Incubus, nightmare; hence something that oppresses like a nightmare. The word comes from the Latin In Dei nomine, Latin for In the name of God; frequently written I.D.N. Indemnity Act (1689), passed every year to indemnify those who accepted office without taking the necessary oaths, but now obsolete Index Expurgatorius, Latin for List of forbidden books; a list of books forbidden to Roman Catholics first issued by Pope Paul IV in 1557 Index finger, first finger, or finger next to the thumb; so called because it is used in pointing out—indicating—things.

things
India. The Indian Empire covers over 1,800,000 square miles, more than all Europe without Russia, and contains 320 million people, about three-quarters of the British Empire's total population. Over 220 different languages are spoken, but in religion 68 per cent, of the people are Hindus and 21 per cent. Moslems,

the rest being Buddhists, Christians, Sikhs, Jains, Parsees, and Animists. The range of crops is enormous, immense quantities of rice, wheat, jute, tea, cotton, sugar, barley, maize, millet, pulse, linseed, spices, and tobacco being produced, in the Ganges and Indus valley especially. Coal and iron are worked in Bihar and Bengal; gold in Mysore; rubies, tin, and petroleum in Burma; mica in Bihar; and salt in the Punjab and Rajputana. The greater part of India is under direct British rule, but it includes many dependent native States, notably Hyderabad, Mysore, and Kashmir. The capital is Delhi (300,000); other great cities are Calcutta (1.300,000), Hyderabad (490,000), Madras (550,000), Hyderabad (490,000), Rangoon (340,000), Lucknow (240,000), Bangalore (240,000), Cawapore (229,000). Cotton, lute, and leather are the chief manufactures: see page 2943 story from ancient times, 2809
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Calcutta, Delhi, and so on
Indiana. American State lying northe
of the Ohio river; area 36,000 square
miles; population 2,950,000; capital
Indianapolis (320,000). Agriculture and
mining are both important. Abbreviation Ind.

mining are both important. Abbrevia-tion Ind.
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Indianapolis. Capital and commercial centre of Indiana, with a large trade in grain, livestock, and meat. It is one of the finest cities in the United States. 220 000

320,000
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Indian Ocean. Ocean lying between Asia, Africa, and Australia, and containing Madagascar, Zanzibar, Mauritus, Reunion, Ceylon, Socotra, the Seychelles, the Maldives, and the Cocos islands. Occupying 17 million square miles and draining five million, it has a maximum depth exceeding 3000 fathoms: 2413
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In Domino, Latin for In the Lord
Induction coil, electrical apparatus for producing currents by induction, one body having electrical properties calling forth similar properties in another without direct contact, 978, 2211
Indus. One of the great rivers of northern India. Rising in the Himalayas, in Tibet, it flows through the Kashmir, the Punjab, and Sind into the Arabian Sea, having a drainage basin of 370,000 square miles: on the border of Sind its discharge in the flood season is sometimes as much as 460,000 cubic feet a second. With its four tributaries, the Jehlam, Chenab, Ravi, and Sublej, the Indus is one of the five rivers of the Punjab, forming an immense water system, now largely used for irrigation. Leh, Skardo, Attock, Sukkur, and

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Karachi are the chief towns it passes. 1700 miles: 6504
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why is it that ink stains? 1416
Inkerman, battle of, Fought in 1854, during the Crimean War, between the
British and the Russians. An army of
42,000 Russians from Sebastopol attacked their besiegers under cover of a
fog, but they were repulsed with a loss of
over 11,000 men. The British lost 2400
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Innsbruck. Capital of the Austrian Tirol,
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Insulator, for insulating a body, and

Engineers
Insulator, for insulating a body and stopping the passage of electricity
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Inter alios, Latin for Among other persons
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Aberration of Light, James Bradley (British) 1727

Accordion, Damiar (Austrian) 1829

Acetylene, Edmund Davy (British) 1836 Acrostic, Porphyrius, (Roman) 4th century Optatianus

Actinometer, Sir John Herschel (British)

Aerated Waters, first made in Europe about 1767

Aerograph, or Air-brush, C. L. Bur-dick (British) 1893

Aeroplane. A development from a successful glider by Sir George Cayley (British) in 1809 to the first successful man-carrying, power-driven aeroplane by Orville Wright (American) 1903

Aga Light (or Dalen Light) for gaslight buoys, Gustaf Dalén (Swedish) about 1907

Air-gun, Rinault or Marin (French) 1656

Air-pump, Otto von Guericke (German) Airship, Baumgarten and Wolfert

(German) 1879 Algebra, Drophantus of Alexandria,

4th century

Alum, at Roccha in Syria, about 1300 Aluminium, Frederick Wöhler (German) 1827

Ambrine, Barthe de Sandfort (French)

American Organ, invented by a French workman in Paris, 1835

Anchors, by the Tuscans before 600 B.C.

Aniline, Unverdorben (German) 1826 Aniline Dye, Sir William Perkin niline Dye, Sir (British) 1856

Antipyrine, Knorr (German) 1883

Aquatint, Abbé St. Non (French) in early 18th century, perfected by Jean Baptiste Le Prince (French) 1750

Archeopteryx, Herman von Meyer and Dr. Häberlein (German) 1861

Archimedean Screw, Archimedes of Syracuse, about 236 B.C.

Argand Lamp, Aimé Argand (Swiss) about 1782

Argon, Lord Rayleigh and Professor

Ramsay (British) 1893 Artesian Welt, first sunk in Europe at Artois, in France, in 1126, but pre-viously known in China and Egypt

Artificial Silk, Count Hilaire de Chardonnet (French) 1889

Astraea, minor planet, Hencke (German) 1845

Atmosphere, composition of, Joseph Priestley (British) 1774

Atmospheric Pressure, 15 pounds to square inch, Galileo (Italian) 1564

Atomic Theory, John Dalton (British) 1808

Atwood's Machine, George Atwood (British) 1784

Audiometer, David E. Hughes (British)

Audiphone, R. G. Rhodes (American)

Avogadro's Law, Count Amedeo Avogadro (Italian) about 1837

Bacteria, Antonius von Leeuwenhoek (Dutch) 1680

Baily's Beads, Francis Baily (British) Carbon Bisulphide, Wilhelm Lampadius

1836
Balloon, Joseph Montgolfier (French)
Proviously Joseph Black 1782. Previously Joseph Black (British) had made a small balloon in a room, 1767

Barium, Sir Humphry Davy (British)

arker's Mill, Dr. Robert Barker (British) 18th century Barker's

Barometer, Torricelli (Italian) about

Barrage in War, first used by British in Battle of the Somme, 1916

Bassoon, Afranio (Italian) 16th century Battering-ram, Artemon monian) about 441 B.C.

Bayonet, at Bayonne, France, about

Beet Sugar: see Sugar Bellows reputed to have been invented

by A.
B.C. Anacharsis (Scythian) about 569 Benzene, or Benzol, Michael Faraday

(British) 1825 Bessemer Steel, Sir Henry Bessemer

(British) 1855 Bicycle, Safety, J. Kemp Starley (British) 1880

Billiards, Henrique Devigne (French) about 1571

Bismuth, Basil Valentine (German) 1450

Blasting Gelatine, Alfred (Swedish) 1875

Bleaching with Chlorine, Claude Ber-thollet (French) about 1785

Blood Corpuscles, Red, Antonius von Leeuwenhoek (Dutch) about 1700 Bobbinet Machine, John Heathcoat

(British) 1809 Bode's Law, named after Johann E.

Bode (German), but first announced by Johann Titius (German) 1772

Bombs, at Venlo in the Netherlands,

Bone Oil, Johann K. Dippel (German) 17th century Acid,

Boracic, or Boric, Acid Homberg (German) 1702 Boulle Work, Charles Boulle (French) about 1672

Boyle's Law, Robert Boyle (British) 1662

Braille System for the Blind, Louis Braille (French) 1834

Bramah Hydraulic Press, Bramah (British) 1795 Joseph

Bromine, Antoine Balard (French) 1826 Brontometer, George J Symons (British) 1890

Buhl Work: see Boulle Robert Bunsen (Ger-Bunsen Burner, R man) about 1852

Cadmium, F. Stromeyer (German) 1817 Calcium, Sir Humphry Davy (British) 1808

Calculating Machine, (French) about 1650 Blaise Pascal

Camera Obscura, attributed to Roger Bacon (British) 1297

Cannon, Berthold Schwarz (German) early 14th century

Cannon, Modern Breech-loading, Sir W. Armstrong (British) 1859

Canstan, reputed inventor Sir Samuel Morland (British) about 1690

Carbide of Calcium, first made by F. Wöhler (German) 1862; first cheap commercial process of manufacture T. L. Willson (American) and H. Moissan (French) 1892

Carbolic Acid, Runga (German) 1834

(German) 1796

Carbon Dioxide (Carbonic Acid Gas), Joseph Black (British) 1755

Catapult, for sieges, Dionysius, the tyrant of Syracuse, 399 B.C.

Cathode Rays, Julius Plucker (German) about 1847

Cell Theory of Life, Theodor Schwann (German) 1839

Cellular Structure of Plants, Robert Hooke (British) 1665

Celluloid, Alexander Parkes and Daniel Spill (British) before 1870; perfected by John Hyatt (American) 1872

Cement (Roman), Parker (British) 1796 phalic Index, An (Swedish) about 1842 Anders Retzius

Ceres, the first asteroid, or minor planet, Giuseppe Piazzi (Italian) 1801 Chain Shot, invented in Europe about 1665

Chanting, St. Ambrose (Gallic) about 386

Chassepot Rifle, Antoine Chassepot (French) 1870

Chlorine, Karl Scheele (Swedish) 1774 Chloroform, simultaneously by Eugène Soubeiran (French) and Baron Liebig (German) 1831. First used as an anaesthetic by Sir James Simpson (British) 1848

Chromium, Vauquelin (French) 1798

Chronometer, John Harrison (British)

Cigarette, invented in France about 1799

Circulation of the Blood, William Harvey (British) about 1628

Clocks, invented by the French in the 13th century

Coal Tar Dyes, Sir William Perkin (British) 1856

Coal Tar Perfumes, Sir William Perkin (British) 1868

Cobalt, George Brandt (Swedish) 1733

Coins, said to have been invented by the Lydians before 860 B.C.

Cold Storage for Meats, Francis Bacon (British) 1626

Collodion, Christian Schönbein (German) 1845

Comet, first photographic discovery of, Edward E. Barnard (American) 1892 Concertina, Sir Charles Wheatstone (British) about 1825

Copying Machine for Letters, James Watt (British) 1778

Cordite, Sir F. A. Abel and Sir James Dewar (British) 1889

Cotton Saw Gin, Eli Whitney (American) 1793

Creosote, Baron Karl von Reichenbach (German) about 1833

Crookes's Tube, Sir William Crookes (British) 1879

Dalen Light (or Aga Light), Gustaf Dalen (Swedish) about 1907

Daylight Saving, William Willett (British) 1908

Diesel Engine, Rudolf Diesel (German) 1893 to 1897

Dissolving Views, Henry L. Childe (British) 1874

Diving Dress, Augustus Siebe (German)

Drilling Machine in Agriculture, Jethro Tull (British) early 18th century

Drum Capstan for Anchors, Sir Samuel Morland (British) about 1690

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#### WITH NAMES, NATIONALITY, AND DATES

Duplex Telegraphy, two messages along one wire at same time, Dr. Gintl (Austrian) 1853

Dynamite, Alfred Nobel (Swedish) 1867 Dynamo, Michael Faraday (British)

Electric Clock, Sir Charles Wheatstone (British) and Alexander Bain (British) 1840

Electric Condenser, Alessandro Volta (Italian) 1782

Electric Furnace, Robert Hare (American) 1781, but first made a commercial success by Sir William Siemens (German) 1880

Electric Light (carbon), Sir Humphry Davy (British) 1800

Electric Light (incandescent), J. W. Swan (British) 1880

Electric Lighthouse, Michael Faraday (British) 1859

lectric Machine, first, Otto von Guericke (German) 1647 Electric Machine.

Electric Motor, Moritz Jacobi (German)

lectric Welding, Profess Thomson (American) 1887 Professor Electric Elihu Electro - magnetism, Hans Oersted

(Danish) 1802 Electron, Von Helmholtz (German)

1881 Electrophorus, Volta (Italian) 1775

Electro-plating Thomas Spencer (British) 1837

Encke's Comet, Jean Louis Pons (French) 1818

Epsom Salts, Nehemiah Grew (British)

Eros, minor planet, Herr Witt (German)

Esperanto, Dr. Zamenhof (Polish) 1887

Etching, Francis Mazzuoli, also called Parmigiano (Italian) about 1532

Ethane, Sir Edward Frankland (British) and Adolf Kolbe (German) 1848

Ether, of space, Johann Encke (German)

Ether, a chemical, Valerius Cordus (German) 1540

Finsen Light, Niels Finsen (Danish) about 1900

Fire-arms, Berthold Schwarz (German) 1378

Fire Brigade, in London 1798

Fire-engine, attributed to Ctesibius of Alexandria about 250 B.C.

Fire-engine, steam, John Braithwaite (British) 1830

Fleming Valve, J. A. Fleming (British) 1904

Flintlock, invented 1588

Flora, minor planet, John R. Hind (British) 1847

Fluorine, Sir Humphry Davy (British)

Flying-shuttle in weaving, John Kay (British) 1733

Fog Siren: see Siren

Formic Acid, John Ray (British)

Fraunhofer's Lines, Joseph von Fraunhofer (German) 1814

Fulminate of Mercury, Luke Howard (British) 1799

Galvanising, Paul Jacques Malouin (French) 1742

Dualin, Explosive, Carl Ditmar (Ger-Galvanometer, André-Marie Ampère Hypnotism, Franz Mesmer (German) 1870 (French) 1820

Gas Engine, John Barber (British), about 1780, but first made practical by Etienne Lenoir (French) 1860

Gas-lighting, William Murdock (British)

Gaslight Printing Paper in photography, first made in America about 1897

Gas Mantle, Baron Welsbach (Austrian) 1885

Gas-meter, John Malam (British) 1820 Gatling Gun, R. J. Gatling (American)

Gegenshein or Counterglow of Zodiacal Light, Brorsen (German) about 1846 Geissler Tube, Heinrich Geissler (German) about 1860

Glass, first made in Egypt about 1550

Glauber Salts, Johann Glauber (German) about 1650

Glycerine, Karl Scheele (Swedish) 1779 Gnome Engine, first successful aero-engine, a French invention about engine. 1909

Golliwog, Bertha Upton (English) 1896 Gramophone (originally called Phonograph), Thomas Alva Edison (American) 1877

Gravitation Laws, Sir Isaac Newton (British) 1685

Greek Fire, Callinicus of Heliopolis, A.D. 668

Grenade, in France about 1536

Guillotine, Antoine Louis (French) 1792 Gun-cotton, Christian Schönbein (German) 1845

Gun, Modern Big, built up of wrought on and steel, (British) 1856 Lord Armstrong

Gunpowder, Roger Bacon about 1292, or Bertholdus (German) about 1320. Son (British) Schwartz Some say it was used by the Hindus 333 B.C.

Gunpowder, Sn (German) 1889 Smokeless, Falkenstein Gyroscope, Jean Foucault (French)

1852

Hammurabi's Code of Laws, found at Susa by J. de Morgan, 1901

Hansom Cab, Joseph Hansom (British) 1833

Process, for hardening steel H. A. Harvey (American) Harvey plates. 1891

Hebe, minor planet, Hencke (German) 1847

Helicopter, first designed by Leonardo da Vinci (Italian) about 1500 Heliograph, H. Mance (British) 1875

Heliometer, Auguste Savary (French) 18th century

Helium, in the Sun, Sir Norman Lock-yer (British) 1868; in the Earth, Sir William Ramsay (British) 1895

Homeopathy, Samuel Hahnemann (German) 1810

Hot-blast, in iron sm Neilson (British) 1828 smelting, James

Hotchkiss Gun, Benjamin Hotchkiss (American) 1881

Hydraulic Crane, Sir strong (British) 1846 Sir William Arm-Hydraulic Press, Joseph Bramah

(British) 1846 Hydrochloric Acid, Le Comte (French)

about 1510 Hydrogen, Paracelsus (German Swiss) about 1500; recognised as an element by Henry Cavendish (British) 1766

Ice, Artificial, ma (English) 1782 Artificial, made chemically, Walker

Inoculation for Smallpox, first practised in India 1500 B.C.

Insulin, Dr. Frederick Banting (Canada) 1923

Icdine, Courtois (French) 1811 Iridium, Smithson Tennant (British)

ris, minor planet, John R. Hind (British) 1847

Iron smelting with coal instead of char

coal, Dr. John Roebuck (British) 1762

Jacquard loom, Joseph Marie Jacquard (French) 1801

Juno, minor planet, Carl Harding (German) 1804

Jupiter, four of his moons first seen by Galileo (Italian) 1610

Jupiter's great red spot, Professor Pritchett (American) 1878

Kaleidoscope, (British) 1816 Sir David Brewster

Key bugle (also called Kent bugle), James Halliday (British) 1810

Kinema, a gradual development. Zoe-Kinema, a gradual development. Zoctrope, or wheel of life, described by W. G. Horner (British) about 1833; first instantaneous photographs of motion, Edward Muybridge (British) 1872; first satisfactory film, George Eastman (American) 1855; first moving picture camera, William Friese-Greene (British) 1889; first satisfactory moving picture projector, Robert W. Paul (British) 1895

Kinetoscope, Thomas A. Edison (American) 1893

Koenig's flame, Rodolphe Koenig (German) 1876

Lace-making machine, Hammond (British) about 1768

Laryngoscope, Manuel Garcia (Spanish) 1855

Lathe, attributed to Talus, grandson of Daedalus, about 1240 B.C.

Laughing gas (nitrous oxide), Joseph Priestley (British) 1772

Leonids, meteors, first seen in A.D. 902 Lewis gun, Colonel Isaac Newton Lewis (American) 1915

Leyden jar, E. G. Von Kleist (German)

Lifeboat, Henry Greathead (British) 1789

Life-saving net for fire brigades, The Haulon Brothers (American) about 1884

Lightning conductor, Benjamin Franklin (American) about 1752

ightning's identity with electricity, Benjamin Franklin (American) 1752 Light valve: see Sun valve

Limelight, Thomas Drummond (British) 1826

Linoleum, Elijah Galloway (British) 1843

Linotype machine in printing, Ottmar Mergenthaler 1889 (German - American),

Liquefaction of gases, Sir Humphry Davy (British) 1823

Lithography, Alois Senefelder (German) about 1796

Logarithms, John Napier (British) 1614 Lucifer matches, Walker (British) 1827 Continued on next page

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#### 400 INVENTIONS AND DISCOVERIES WITH

Continued from previous page

Macadamised roads, John MacAdam (British) 1819

Machine gun, earliest type first used in American Civil War, 1861

Magic lantern, Athanasius Kircher (German) 1646

Magnesium, Sir Humphry Davy (Brit-

Magnesium light, Robert Bunsen (German) 1860 Magnetic needle, dip of, Robert Norman (British) about 1576

Majolica, Luca della Robbia (Italian) about 1440

Malaria germ, true life-story of, Sir Ronald Ross (British) 1898

Manganese, Joseph Gahn (Swedish)

Manometric flames: see Koenig's flames Margarine, Mege-Mouries (French) 1869 Mars, canals of, Giovanni Schiaparelli (Italian) 1877

Mars, moons of, Asaph Hall (American)

Matchlock, invented about 1460; first used in battle at Rhejan, 1525

·Maxim gun, Sir Hiram Maxim (Ameri-can) 1884

Maximite, high explosive, E Maxim (American) about 1890 Hudson

Meat Extract, Baron Liebig (German) 1848

Megaphone, Thomas Alva Edison (American) 1878

Melinite, Eugène Turpin (French) 1886 Mendelism, law of heredity, Gregor Mendel (Austrian) 1854

Mercerised cotton, (British) 1844 John Mercer

Mercurial pump, Emanuel Swedenborg (Swedish) 1722

Mercury vapour lamp, Peter C. Hewitt (British) 1902

Mesmerism, Franz Mesmer (German) about 1766

Metric system, a committee of seven Frenchmen 1790 to 1799

Mezzotint engraving, Colonel Von Siegen (German) 1643

Micrometer, William Gascoigne (British)

Microphone, Pro (British) 1878 Professor D. E. Hughes

Microscope, Zacharias Jansen (Dutch) about 1590

Mimeograph, Tho (American) 1878 Thomas Alva Edison

Mineral waters: see Aerated waters

Mines at sea, first used by Americans in 1776

Minor planet, first photographic dis-covery of, Max Wolf (German) 1891

Minor planets, first one, Ceres, discovered by Giuseppe Piazzi (Italian)

Minor planets, smallest 550 yards across, discovered by James E Keeler (American) 1900 James E.

Monitor, John Ericsson (Swedish) 1862

Monotype machine, Talbot Lanston (American) about 1887

Morphia, Serturner (German) 1816

Morse code, Samuel Morse and Alfred Vail (American) 1837

Morse telegraph instrument, Samuel Morse (American) 1832

Motor-car, a gradual development. First self-propelling road vehicle by Nicolas Cugnot (French) 1768; first petrol-driven motor car by Gottlieb Daimler (German) 1884

Mulready penny postage envelope, William Mulready (British) 1840

Mustard gas, Guthrie (British) 1860

Naphthalene, A. Garden (British) 1819 Nebula in Andromeda, Abdurrahman Al-Sufi (Persian) middle of tenth

Nebula in Orion, Jean Baptiste Cysatus (Swiss) about 1618

Nebular hypothesis, Pierre Laplace (French) 1796

Neptune, discovered by mathematical aclaulation independently by John Adams (British) and U. J. J. Leverrier (French) 1846; actually seen by Dr. Johann Galle (German) and James Challis (English) 1846

Neptune's moon, (British) 1846 William Lassell

Nernst lamp, Walther Nernst (German) Nickel, Axel Cronstedt (Swedish) 1751

Nitrogen, Daniel Rutherford (British) 1772

Nitro-glycerine, Sobrero (Italian) 1847 Nordenfelt Gun, Torston V. Nordenfelt (Swedish) 1881

Okapi, Sir Harry Johnston (British) 1901

Omnibus, first used in Paris 1818 Ophthalmoscope, Hermann Helmholtz (German) 1851

Optophone, Dr. E. E. Fournier d'Albe (French) 1914

rrery, fourth Earl (British) 18th century Earl

Oscillation valve: see Fleming valve Oxygen, Joseph Priestley (British) 1774 Oxy-hydrogen blowpipe, Robert Hare (American) 1801

Ozone, Christian Schönbein (German) 1839

Paddle-wheels, (British) 1787 William P. Miller

Pallas, minor planet, Heinrich Olbers (German) 1802 Panorama, Robert Barker (British)

18th century Pantograph, Christopher Scheiner (Ger-

man) about 1603 Paper-making machine, Louis Robert (French) about 1690

Paraffin, Baron Karl von Reichenbach (German) 1830

Paravane, Commander C. D. Burney (British) 1916

Parchment, Elmenes of Pergamus, about 190 B.C.

Pens, steel, Wise (British) 1803

Percussion caps first used by French Army 1830

Phonograph, Tho (American) 1877 Thomas Alva Edison

Phonography (Pitman's short Sir Isaac Pitman (British) 1837 shorthand)

Phosphorus, George Brandt (Swedish)

Photography, a gradual development. Thomas Wedgwood and Sir Humphry Davy (British) made sensitised paper and took prints of objects 1802; Joseph Niepce (French) improved this process 1814; Louis Daguerre (French), who had worked with Niepce, produced daguerrotype photographs in 1839; Repeating watches and clocks, Edward Barlow, sometimes called Booth (British) 1676
Revolver, Samuel Colt (American) 1835
Rifled barrels for firearms, August Kotter (German) about 1520
Rocket apparatus for saving life. Idea invented by Sergeant Bell (British)

first negative photograph made by. Henry Fox Talbot (British) 1839; first flash-light photograph by Mr. Brothers (British) 1864; first dry plate by Dr. R. L. Maddox (British) 1871; first colour photography, Franz Veress (Austrian) 1890

Pianoforte, attributed variously to Cristofalli (Italian), J. C. Schroeter (German), and Marius (French) early in 18th century. Really evolved from earlier instruments

Picric acid, Peter Woulfe (British) 1771 Picture postcards, first used at Royal Naval Exhibition, London, 1891

Piltdown Skull, Charles Dawson (British) 1912

Pistol, invented at Pistoja, Italy, about 1500

Pithecanthropus, Dubois Eugène (French) 1894

Pitman's shorthand, Sir Isaac Pitman (British) 1837

Planimeter, Hermann (German) 1814 Pneumatic tyre, John B. Dunlop (British) 1888

Pompeii, by an Italian peasant 1748 Portland

ortland cement, Joseph Aspden (British) 1824

Postage stamps, adhesive, James Chalmers (British) 1834

Potassium, Sir Humphry Davy (British)

Potter's wheel, said to be invented by Anacharsis the Scythian, about 569 B.C. Printing (in Europe), Johann Gutenberg (German) about 1420. Printing from movable types was practised in China centuries earlier

Printing from cast type, Peter Schoeffer (German) about 1440

Printing machine, steam, with a revolving cylinder of paper, Friedrich Koenig (German) 1810

Precession of the equinoxes, Hipparchus (Greek) 130 B.C.

Prussian blue, Johann K. Diffel (German) early 18th century

Quinine, Pierre Pelletier and Joseph Caventou (French) 1820

Radiometer, Sir (British) 1875 Sir William Crookes

Radiotonogram, Dr. E. E. Fournier d'Albe (French) 1924

Radium, Madame Curie (Polish) and M. Curie (French) 1898

Railways, a gradual development from the wooden tracks and rails for horse-drawn vehicles in the colliery district of Newcastle in the 17th century. First steam locomotive by Richard Trevith-ick (British) 1801; George Stephen-son's first locomotive 1814; first steam railway, Stockton and Darlington, opened 1825 railway, Stock

Reaping machine, Rev. Patrick Bell (British) 1826

Refrigerator, Jacob Perkins (British)

Regelation, of ice, Michael Faraday (British) 1850

Regenerative furnace, Sir William Siemens (British) 1856

Repeating watches and clocks, Edward Barlow, sometimes called Booth

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### NAMES, NATIONALITY, & DATES—CONTINUED

Röntgen rays : see X-rays

Rope-making machine, Richard Marsh (British) 1784

Rosetta stone, by a French officer near Rosetta, Egypt, 1799

Rotor Boat: see Sailless Sailing Ship Ruling machine, by a Dutchman in London 1782

ccharine, Fahlberg and Remsen (American) 1886 Saccharine.

Safety fuse, William Bickford (British)

nfety lamp, Sir Humphry Davy (British) 1815 Safety

Sailless sailing ship, Anton Flettner (German) 1924

Sam Browne Belt, General Sir Samuel Browne (British) before 1900 Saraband, a stately dance, Sarabanda

(Spanish) 16th century

Saturn's dusky ring, William Bond (American) 1850

Saturn's moons, four of them first seen by Giovanni Cassini (Italian)1671, 1672, 1684

Saturn's rings, first seen as handles by Galileo (Italian) 1610

Saturn's rings, with the dark division, first recognised by Giovanni Cassini (Italian) 1675

Saw, band, William Newberry (British)

Saw, circular, Samuel Muller (British)

Screw-auger, William Henry (American) about 1755

Screw propeller, Robert Hooke (British) 1681

Sedan chair, first used at Sedan in France, early 17th century

Seismometer or seismograph, Robert Mallet (British) 1858

Selenium, John Berzelius (Swedish)

Serpent, musical instrument, Canon Guillaume (French) 16th century

Sewing machine, Thomas Saint (English) 1792; but first really satisfactory machine by Elias Howe (American) about 1841

Shell in warfare, first used about 1600 Shrapnel shell, Henry Shrapnel (British)

Siren, C. C. Daboll (American) 1870

Slide rule, Edmund Gunter (British) 1620 and Edmund Wingate (British) 1626

Soda Water, first manufactured at Geneva at end of 18th century

Sodium, Sir Humphry Davy (British)

Sonnet, form of verse, Guido d'Arezzo (Italian) about 1024

Sound photography. Dr. E. E. Fournier d'Albe (French) 1924

Spectacles attributed to Alexander de Spina (Italian) about 1285

Spectroscope, Sir Isaac Newton (British) about 1672 Spinning jenny, James Hargreaves (British) about 1764

Samuel Crompton

Spinning mule, (British) 1779 Spinning roller, Sir Richard Arkwright

(British) 1769 Spiral nebula, first, Sir John Herschel (British) 1845

1791, first practical apparatus Captain W. Manby (British) 1807 Hooke (British) about 1600 and J. M. Thevenot (French) about 1690

Sprengel pump, H. J. P. Sprengel (German) 1865

Springs for watches and clocks, Dr. Hooke (British) 1735

Hooke (British) 1735

Steam engine, a gradual development from the acolipile of Hero of Alexandria about 130 B.C.; Marquis of Worcester (British) describes a steam engine 1663; irst steam engine with a piston by Denis Papin (French) 1690; first steam engine used regularly by Thomas Savery (British) 1698; first self-acting steam engine by Thomas Newcomen (British) 1712; James Watt's first engine, the real parent of modern engines, 1769. See Turbine

Steam hammer. James Nasmyth

hammer, James Nasmyth Steam (British) 1842

Steam plough, Mr. Heathcote, M.P. (British) 1832

Steamship, a gradual development. In 1736 Jonathan Hulls (British) took out a patent for a steamboat, but this was only designed, never made; Count de Jouffroy (French), after several at-tempts, built a steamboat which made a successful run on the Saone at Lyons 1783; William Symington (British) successfully tried a steamboat in 1788, and in 1802 made the first steamboat

for practical use Stereoscope, Sir Charles Wheatstone (British) 1838

Stethoscope, René Laennec (French)

Stocking frame, in weaving, William Lee (British) 1589

Stokes gun, or mortar, Sir George Stokes (British) 1915

Submarine, a development. One said to have been invented in 1578, various improvements led to first really successful submarine by Nordenfelt One said (Swedish) 1885

Sugar from beetroot. graff (German) 1747 Andres Marg-

Sunshine recorder, J. F. Campbell (British) 1857

Sun-valve for unattended lighthouses, Gustaf Dalén (Swedish) about 1900

Talking machine: see Gramophone Tartaric acid, Karl Scheele (Swedish)

Taximeter, A. Gruner (German) 1895 Telegraph, electric, Sir William Cooke and Sir Charles Wheatstone (British) 1837 and about the same time Samuel Morse (American)

Telegraph, semaphore system, Claude Chappe (French) 1792

Telephone, Alexander Graham Bell (British) 1877 Telescope, reflecting, Sir Isaac Newton (British) 1668

Telescope, refracting, a development. First suggested by Roger Bacon about 1250; arrangement of lenses to bring things near by Leonard Digges, before 1570; telescopes first constructed by John Lipperhay, Zacharias Jansen, and James Metius (Dutch) about 1608

Tel-el-Amarna tablets, found by Professor Flinders Petrie (British) 1888 Tellurium, John Muller (German) 1782 Thallium, Sir William Crookes (British)

hermionic valve, Lee de Forest (American) 1907 Thermionic

Thermometer, attributed to Galileo before 1597 Thorium, John Berzelius (Swedish) 1828

Threshing machine, Michael Menzies (British) about 1732

Timber-bending machine, T. Blanchard (American) about 1854

(trinitrotoluene), Wilbrand (German) 1863

Tonic-sol-fa system of mus Glover (British) about 1841 of music, Miss

Tonometer, H. Scheibler (German) 1834 Torpedo, Robert Whitehead (British) 1866

Torpedo boat destroyer, John Ericsson (Swedish) about 1870

Torsion balance, Charles Coulomb (French) 1786

Tourniquet, Morel (French) 1674

Tramways, a development from colliery tramways. First modern tramway by Mr. Train (American) at New York, Mr. Tra 1832

Transit of Venus, first observed by Jeremiah Horrocks (British) 1639

ransporter bridge, Charles S (British) middle of 19th century Smith Transporter

Tread-mill for prisons, Sir William Cubitt (British) 1817

Tuberculin, Professor Robert Koch (German) 1890

Tungsten, Don (Spanish) 1783 Fausto D'Elhuyar

Tunnelling, shield for, Sir Marc Isambard Brunel (British) about 1825

Turbine, steam, Hero of Alexandria 130 n.c. In modern times the cupped turbine was invented by De Laval (Swedish) in 1888, and the bladed turbine by Sir Charles Parsons in 1884

Tutankhamen's tomb, Howard Carter (British) 1922

Typewriter, Mills (British) 1714, but first practical machine Charles Thurber (British) 1843

Typographic etching, Dawson Brothers (British) 1873

Uranium, Martin Klaproth (German) 1789

Uranus, Sir William Herschel (German) 1781; previously seen twenty times, but supposed to be a small star

Uranus, two moons of, Sir William Herschel (German) 1781. Two others found by William Lassell (British) found by

Vaccination for smallpox, Dr. Edward Jenner (British) 1796

Venetian glass, at Venice about 1100

Vesta, minor planet, Heinrich Olbers (German) 1807

Vitamins, Dr. Eugene Wildiers (Belgian) 1901

ocalion, James B. Hamilton and John Farmer (British) 1875

olapuk, universal language, J. M. Schleyer (German) 1879

Voltaic pile, Alessandro Volta (Italian)

Wall-paper, first used in Europe, in Spain and Portugal, about 1555, used earlier in China and Japan

Weaving power-loom, Edmund Cart-wright (British) 1785

Wireless telegraphy, Sir W. H. Preece (British) 1895

Wool carding machine in spinning, Lewis Paul (British) 1748

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tained in a private house, as furniture, books, and so on; also of goods in shops or warehouses. The word comes from the Latin Invenire, to find out Inveraray. Capital and fishing port of Argyllshire, on Loch Fync. (500) Invercargill. Capital and port of Southland, New Zealand, in an agricultural and pastoral district. 20,000 Invergordon harbour, Scotland, 3561 Inverlochy Castle, Scotland, 1335 Inverness. Capital and port of Inversesshire, near the entry of the Ness to Moray Firth. Regarded as the capital of the Highlands, it has a cathedral, railway shops, and much agricultural or the Highlands, it has a cathedral, railway shops, and much agricultural trade. 21,000 castle, view showing bridge, 1338 cathedral, 1337
Inverness-shire. Scottish Highland

Inverness-shire. Scottish Highland county; area 4211 square miles; population 85,000; capital Inverness. It includes Skye, Harris, and other of the Inner and Outer Hebrides; the mainland is traversed by Glen More, containing the Caledonian Canal. The scenery is extremely beautiful, and here is Ben Nevis Invertebrate animals, 451, 1565, 3662, 453

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Iona. Islet of the Inner Hebrides, famous as the landing-place of Columba in 563. It was once the seat of the lisloppie of the Isles, and its cathedral, destroyed in the Reformation, has been restored and reopened: 2777

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Ionian Sea. Part of the Mediterranean lying between Italy and Greece
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I.O.U. stands for I owe you
Iowa. American prairie State; area

I.O.U. stands for I owe you
Iowa. American prairie State; area
56,000 square miles; population
2,400,000; capital Des Moines (130,000).
Agriculture and coalmining are the
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arms, in colour, 4990
Ipswich. Agricultural and manufacturing centre in Queensland, Australia, 24 miles from Brisbane. 25,000
Iquique. Nitrate port of Chile, exporting also copper and borax. 50,000: see page 7914

page 7914 Iran, native name for Persia, 6385 Iraq, kingdom, formation of, 5029 flag, in colour, 4010 See also Mesopotamia Ireland, Island west of Great Britain,

area 32,600 square miles; population

4,500,000; capitals Dublin (305,000) and Belfast (300,000). Consisting of the provinces of Ulster, Leinster, Munster, and Connaught, it is divided politically into Northern Ireland and the Irish Free State: Northern Ireland forms part of the United Kingdom, while the Irish Free State is a self-governing dominion of the British Empire. The people are nearly all Celts, and mainly Roman Catholics, but in the six counties of Ulster which make up Northern Ireland Protestants predominate. The centre of Ireland is generally flat, and contains the Bog of Allen and many lakes; but the coast is generally flat, and contains the Bog of Allen and many lakes; but the coast is fringed with mountains, the highest of which are MacGillicuddy's Reeks in Kerry. The Shannon (220 miles) is the longest river in the British Isles, and Lough Neagh (150 square miles) the largest lake. Agriculture, dairying, and stock-raising are the staple industries, but Northern Ireland has also linen, woollen, and shipbuilding trades. Cork (20,000), Londonderry (40,000), and Limerick (39,000) are ports: 3061 Christianity's growth, 588, 594, 3062

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fetid, wild fruit, in colour, 3666

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Irish. The mainly Ibero-Celtic race
that inhabits Ireland. A high neolithic
culture prevailed in Ireland and the
dolmen-builders were of a long-headed
Iberian stock of the Mediterranean
type. They were followed by Celts of
the Gaelic branch, who conquered the
whole island and gave it their language.
Danes formed settlements but were
absorbed and in the last six centuries absorbed and in the last six centuries British Teutons and Lowland Scotch have occupied the north and many of

British Teutons and Lowland Scotch have occupied the north and many of the large towns
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Irish Ensign (1686), in colour, 2408
Irish Free State. Self-governing dominion of the British Empire; area
27,300 square miles, population,
3,140,000; capital, Dublin (305,000).
Celtic and Roman Catholic, it comprises all Ireland except six counties in Ulster, which are largely peopled by Protestants and form Northern Ireland.
Its staple industries are agriculture, dairying, and stock-raising, the only large towns besides the capital being Cork (80,000), Limerick (39,000), and Waterford (28,000). Here are the Shannon, the Bog of Allen, the Lakes of Killarney, and Carrantuchill (3400 feet), the highest Irish mountain formation after Great War 1214 3065

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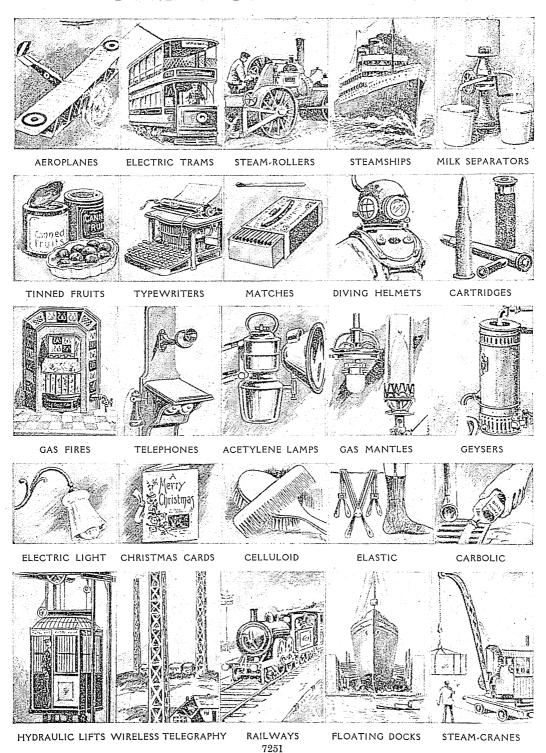
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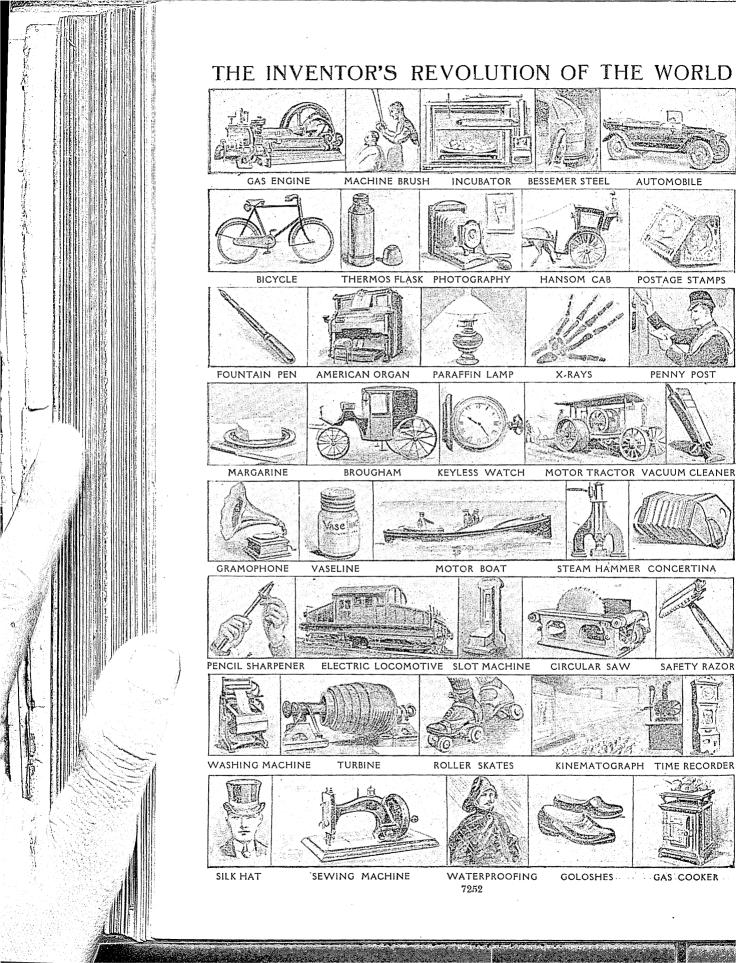
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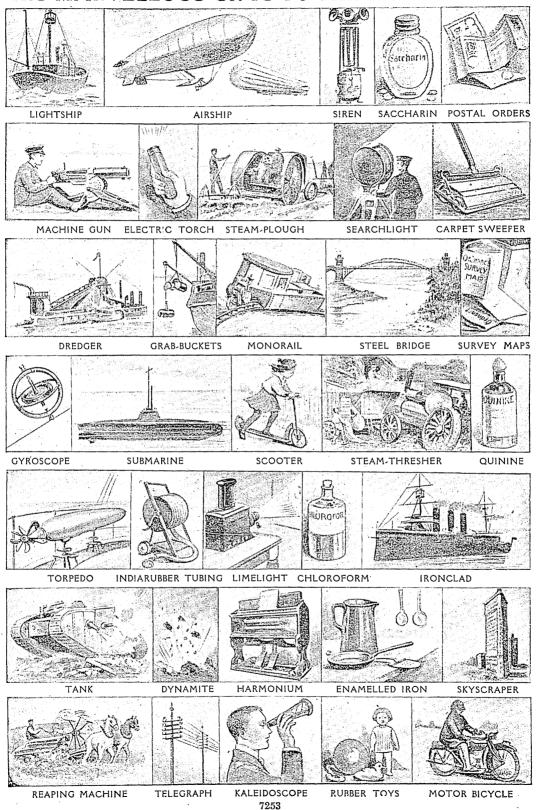
Iron Duke, name given to the Duke of Wellington Iron-Eating Rats, The, fable, 6933

# ONE HUNDRED INVENTIONS OF ONE HUNDRED YEARS





## HIS MARVELLOUS GIFTS TO THE HUMAN RACE



Iron temple, 6851 Australia Greenland

Iron Gates. Narrow gorge where the Danube cuts its way between the Balkan Mountains and the Transylvanian Alps, on the border of Serbia and Rumania. Here a series of rapids stretching for two miles formerly prevented navigation, but between 1890 and 1900 a passage was made for river steamers by blasting, 4549, 4550 Iron pyrites, in china-clay, 1922 picture of mineral, 1803 Iron-roofing, why is iron-roofing corrugated? 4762 Ironsides, Cromwell's brigade in the Civil War; so called for its irresistible force, 522, 1208 Ironucians. A group of North America Vanish and the Civil Mariand Company of North America Vanish and the Civil Mariand Company of North America Mariana and Company of North America and Company force, 522, 1208
Iroquoians. A group of North American Indian tribes who have been called the Romans of the New World on account of their proud bearing, warlike spirit and sound political organisation. They became the historical Six Nations in 1718, comprising Mohawks, Oncidas, Cayugas, Senecas, Onondagoes and Tuscaroras Irradiation, what is meant by, 2664
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Baflin Land
Madagascar 236,000 228,000 Sumatra
Great Britain
Honshiu (Japan) 160,000 88,000 87,500 72,000 60,000 58,500 50,000 Java North Island (N.Z.)

Islay. One of the largest of the Inner Hebrides; area, 235 square miles; population 6500. Sheep and cattleraising is carried on its goology, 2002

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Isotherm, meaning, 6720 Isotherm, meaning, 6720
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Italians. A people mainly of the Meditalians. A people mainly of the Mediterranean type of the white race, Originally inhabited by long-headed Ligurians from North Africa, Italy was invaded by Celts and Slavs, who gradually permeated downwards and founded the Roman State. Aegean culture early spread to Italy and Greek influence has made and kept the Italians one of the most gifted and civilised peoples of Europe

Europe Italian Somaliland: see Somaliland Italy. Kingdom of southern Europe. talian Somaliland: see Somaliland Italy. Kingdom of southern Europe. consisting of a large peninsula, with Sicily, Sardinia, and several smaller islands. The modern kingdom of Italy dates from 1861, when Victor Emmanuel of Sardinia was declared king by the first Italian parliament. In 1866 Venetia was ceded by Austria; in 1870 the French evacuated Rome; and in 1918 the country was rounded off by the acquisition of Istria, Gorizia, and the Trentino. It is now 118,000 square miles in extent, and supports about 38,850,000 people. The chief products are cereals, wine, timber, maize, olives, chestnuts, oranges, lemons, hemp, flax, and sugar-beet; hemp, linen, cotton, silk, iron, steel, paper, leather, and furniture are manufactured, extensive use being made of electrical power in industry. The paper, leather, and furniture are manufactured, extensive use being made of electrical power in industry. The capital is Rome (700,000), other great towns being Naples (780,000), Milan (720,000), Turin (500,000), Palermo (400,000), Genoa (320,000), Tricste (240,000), Florence (260,000), Bologna (215,000), Venice (175,000), Catania (260,000), Leghorn (115,000), Bari (115,000), and Padua (115,000); Spezzia, Messina, Taranto, Brindisi, and Ancona are important ports: see page 4909 history from early times, 4783, Attila's assault, 2154 Austrian power in, 1442, 4786 chaos after fall of Roman Empire, 2278, 4783 civil war in days of ancient Rome, 1535

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Jamaica. Chief British West Indian island; area, 4450 square miles; population, 860,000; capital Kingston (60,000). Generally hilly, it has fine forests of cedar, chony, logwood, mahogany, and beautiful flowering shrubs, but bananas, oranges, sugar, caco, tobacco, and coffee are extensively produced, and in 1918 there were 166,000 eattle. Of the population 630,000 are Negroes and only 16,000 pure whites. Discovered in 1494 by Columbus, Jamaica remained Spanish up to 1655, when it was conquered by Penn and Venables, 3424

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forests containing tigers, leopards,
rhinoceroses, buffalos, civets, monkeys,
and deer. Rice, copra, tobacco, coffee,
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investigator of thermo-dynamics; born Salford 1818; died Sale 1889; see pages 5442, 6814 portrait, 6309

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Juan Fernandez. Largest of a group of islands lying 360 miles west of Chile. Alexander Selkirk, hero of Defoe's Robinson Crusoe, lived alone here, (1704-1709)
Juba River, East Africa, 6749
Jubilee Bridge, near Calcutta, stretches 1200 feet across the Hooghli, has a central double cantilever 360 feet long, and two side span girders each of

central double cantilever 369 feet long, and two side span girders each of 420 feet: see page 555

J.U.D. stands for Doctor of Canon and of Civil Law (Latin Juris Utriusque Doctor)

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statesman and author; born Rome 102
B.C.; assassinated there 44
B.C.; conquered Gaul and invaded Britain and
Germany; reformed the calendar and

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of the Bernese Oberland, Switzerland.
It has two sister peaks, the Mönch
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ice grotto, 4671
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political letters signed Junius, authorship of which is not certain
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Jura Mountains. Thickly wooded

Hebrides; area 140 square miles; population (600)
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Juvenal, Roman satirical poet of the age of Trajan; lived about A.D. 60-140
on Rome's degeneration, 1538, 5432
Juventas, cupbearer of old gods, 3517

Kaaba, sacred shrine at Mecca, 6280
Kabul. Capital of Afghanistan, trading in cottons, carpets, and silk. 100,000: see page 6502
Kado, Burma, modern temple at, 5082
Kadsutoyo and the goblin, story, 2384
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Kaka, New Zealand bird, 3498
Kakapo, owl parrot, 3502, 3497
Kalahari Desert. Vast arid stretch of country in the west of South Africa, largely in Bechuanaland. It is on an average 3000 feet high, and stretches 600 miles north of the Orange River Kalanite, alum, mineral, 1304
Kalat Seman, Syria, basilica, ruins, 5752
Kaleidophone, for exhibiting sound vibrations by means of curves of light caused by vibrating metal rods Kaleidoscope, how to make, with pictures, 876, 4951, 6177
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Kalevala, Finnish epic poem, 6021
Kalgoorlie. Gold-mining town in the East Coolgardie goldfield, Western Australia. With the neighbouring town of Boulder, it is provided with water brought from the coast by a pipeline 400 miles long. 18,000
Kaliah and Dimnah, name of Pilpay's Fables, 6933
Kalmar. A ncient Swedish cathedral city and Baltic port. 20,000
Union of Kalmar, 5779
medieval castle, 5782
Kalmuks. Western Mongols who live

city and Baltic port. 20,000
Union of Kalmar, 5779
medieval castle, 5782
Kalmuks. Western Mongols who live
on the lower Volga plains and practise
Buddhism. Light yellow in colour,
round-headed, and short in stature,
they are typical of the Mongol division
of mankind: see page 6016
Kalutunah, Eskimo chief, 6432
Kama. Tributary of the Volga in east
Russia
Kamakura. Buddha's statue, 5078

Russia
Kamakura, Buddha's statue, 5078
Kamchatka. Peninsula in north-east
Siberia, containing a lofty chain of
volcanic mountains. The climate is
cold and damp, and the people get their
living chiefly by hunting and fishing.
Petropavlovsk on the Pacific coast has
a splendid harbour
Kamale Compensal control of

a splendid harbour
Kampala. Commercial capital of
Uganda, near Lake Victoria
Kanazawa. City of Honshu, Japan,
making lacquer and pottery. 130,000
Kanchanganga: see Kinchinjunga
Kandahar. Walled trading centre in
south Afghanistan. 60,000: see 6502
Kandy. Old capital of Ceylon, containing tombs of Cinghalese kings and
many temples. 35,000
king deposed by British (1815), 1951
Kane, Elisha Kenf, American Arctic
explorer, discoverer of Kane Basin;
born Philadelphia 1820; died Havana
1857: see page 6432
portrait, 6431
with comrades in Arctic, 6443

with comrades in Arctic, 6443

Kangaroo, pouched mammal of Australasia and New Guinea, 2387, 2444

Kangaroo, pouched mammal of Australasia and New Guinea, 2387, 2444
Englishmen's first sight of one, 2146
antelopine variety, 2393
jumping kangaroo, 2387
various species, 2393, 2395
Kangaroo rat, characteristics, 2390
Kangaroo tree, 2396
Kano. Trading centre of northern
Nigeria, with native manufactures of
silk, cotton, and leather. 100,000
Kansas. American prairie State on the
right bank of the Missouri; area 82,000
square miles; population 1,800,000;
capital Topeka. It has great agricultural and stock-raising industries, the
source of an important meat-packing
trade at Kansas City (430,000).
Abbreviation Kan.
State flag in colour, 2411
Kansas Gity. Two cities of U.S.A., one
in Kansas and the other in Missouri.
They are divided by the Missouri,
otherwise being practically one city,
and lave a great trade in grain, meat,
and live-stock. The combined population is about 450,000: see page 3799
Kant, Immanuel, famous German
philosopher; born Königsberg 1724;
died there 1804: see page 4844
writing in study, 4843
Kapiolani, story of, 5827

Kappel, Switzerland, battle of, 4679
Kapteyn, Professor, on movement of
two hosts of stars, 1678, 6545
on truth, 2996
Kapurthala, India, temples, 5082
Karachi, Indian port near the mouth
of the Indus, Founded in 1843, it
exports much grain from the Punjab.

exports much grain from the Punjab. 220,000 harbour, 3561 Karakoram Mountains. Lofty range forming an immense barrier between Central Asia and Kashmir. Here are Mount Godwin Austen, 28,250 feet, and some of the greatest glaciers in the world

World
Karamzin, Nicholas, first Russian historian; born near Orenburg 1765; died near St. Petersburg 1826: see 4816
Karangahape, New Zealand goldmining town, 2703
Kara Sea, summer trade route, 6014

mining town, 2703
Kara Sea, summer trade route, 6014
Karelians, Russian people, 6016
Karens, a short, sturdy race of Southern
Mongols, with black or brown hair and
a yellowish brown complexion. The
Karens form one-sixth of the people
of Burma
Karli, India, rock temple, 5626
Karlowicz, Polish musician, 6136
Karlsefne, Thorfinn, Viking navigator
who attempted to found a colony in
America in 1006: see page 1014
Karlskrona, Swedish port, 5772
Karlsruhe. Capital of Baden, Germany, making engines, chemicals, and
cloth. 140,000
Karnak. Village of Upper Egypt,
standing on the site of ancient Thebes.
Here are remains of the Amen temple
and of a huge colonnaded hall, 5380
Mariette's work in disclosing temple,
6850

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6850 Avenue of Sphinxes, 5385, 5387 hypostyle hall, 5381, 5386 llon-headed figure from, 6855 temples, 5385, 5388 wall carving, 6854 woman of, 6871

wand carving, 0894
woman of, 6871
Karri, Australian tree, 2446
Karroo, Great. Pastoral plateau covering 100,000 square miles in the Cape
Province of South Africa. On an
average it is about 3500 feet high
Kaschau. Kosice, or Kassa, chief city
of Slovakia, Czecho-Slovakia, with a
fine Gothic cathedral. 55,000
Kashgar. Trading centre in Chinese
Turkestan. 30,000: see page 6503
Kashmir. Native State of northern
India; area 85,000 square miles; population 3,200,000; capital Srinagar
(150,000). Much of it consists of a
barren tableland between the Karakoram range and Himalayas, but in the
Jhelum valley is the Vale of Kashmir,
one of the loveliest and most fertile
spots in the world
river Jhelum, near Sopor, 2955

one of the loveliest and most fertile spots in the world river Jhelum, near Sopor, 2955 Srinagar, the capital, 2951 Kasprowicz, Polish poet, 6136 Kassala. Sudanese town in a large cotton-growing region. 10,000 Katabatic, what it is, 6720 Kate Barlass of the broken Arm, 6952 Katharina, in Shakespeare's Taming of the Shrew, 6044 Katherine, queen of England, French wife of Henry V, 958 in Shakespeare's Henry V, 6291 Katrine, Loch. Beautiful Scottish lake in Perthshire, in the famous Trossachs region. Scott describes its scenery in The Lady of the Lake Ellen's 181e, 1337 Kauffmann, Angelica, Swiss painter; born 1741; died 1807: Vestal Virgin, painting by, 3536 Kaunas: see Kovno Kauri pine, description and uses, 3789 Kavala, hero of, story, 6685 Kavala, hero of, story, 6685 Kavala, or Kavala. Greek port in Thrace, exporting tobacco. 25,000 Kay, John, of Bury, inventor of flyshuttle; born about 1733; died 1764:

Kay, John, of Bury, inventor of flyshuttle; born about 1733; died 1764: 'seeks refuge from angry mob, 4492

Kazan. Trading centre of eastern Russia, on the Volga. Formerly a Tartar city, it has a kremlin containing a splendid monastery and a 16th-century cathedral. 290,000; see 6016 Kazimain, Mesopotamia, mosque, 6272
K.B.E. stands for Knight of the Order
of the British Empire
K.C. stands for King's Counsel
K.C.B. stands for Knight Commander
of the Order of the Bath

of the Order of the Bath K.C.I.E. stands for Knight Commander of the Order of the Indian Empire K.C.M.G. stands for Knight Commander of the Order of St. Michael and St. George

George
K.C.S.I. stands for Knight Commander
of the Order of the Star of India
K.C.V.O. stands for Knight Commander
of the Victorian Order
Kea, New Zealand bird, 2894, 3498
picture, 3499
Keats, John, English poet; born London 1795; died Rome 1821; one of
the greatest poets of the 19th century;
see page 2599
appreciation of opening flowers, 84
immortal sonnet written after first
reading Chapman's Homer, 5179
poems: see Poetry Index
writing a poem, 2507
Keble, John, English religious leader
and writer of hymns; born Fairford,
Gloucestershire, 1792; died Bournemouth 1866
poem: see Poetry Index mouth 1866

poem: see Poetry Index portrait, 1759 Kelle College, Oxford, arms in colour, 4988

Kedah, flag in colour, 2407 Kedron, valley of, view, 3469 Keep, tower built by Normans, 717 Keewatin. Part of the Canadian North-West Territory lying west of Hudson Bay

Hudson Bay
Kelantan, ensign in colour, 2407
Kellgren, Johan, Swedish poet and
literary critic; born Floby, West
Gothland, 1751; died Stockholm 1795
Kells. Town in Co. Meath, on the
Blackwater. In the 6th century
St. Columba founded here a monastery
in which the Book of Kells was written;
ancient remains include St. Columba's
House, a round tower, and crosses: 600
Saint Columba's Cross. 3060

Saint Columba's Cross, 300 sculptured coffin lid, 3060 3060

sculptured coffin lid, 3060
Kelp, produced from seaweed, 3410
Kelso. Agricultural centre in Roxburghshire, at the junction of the Tweed and Teviot. Here are ruins of a 12th-century abbey. (3500)
Kelvin, William Thomson, Lord, British electrician, scientist, and mathematician, a famous pioneer of the submarine cable; born Belfast 1824; died near Largs, Ayrshire, 1907: see 5949 calculation of number of stars in the Universe. 3728

Universe, 3728 definition of sensitive and latent heat. 5566 J. P. Joule befriended by him, 6314

researches, 6316 telegraphy's development, 1603 wire first used for sounding sea-depths,

explains invention, 6315 portraits, 1827, 4131, 5939, 6315 Kemal Pasha, Turkish soldier, with his

wife, 5024
Kemble, Fanny, Shakespearean actress and poet, daughter of Charles Kemble; born 1809; died 1893; for poem see Poetry Index

Rempen, Germany, birthplace of Thomas à Kempis, 1389

Kempenland, or Campine, Belgian sandy plain, 5648

Kempis, Thomas à: see Thomas à

Kempis Ken, Thomas, English writer of hymns,

one of the famous Seven Bishops; born Little Berkhampstead, Hertfordshire, 1637; died Longleat, Wiltshire, 1711; see pages 1760, 1759 for poem see Poetry Index

Kendal. Largest town in Westmorland, making woollens and leather.

14,000
Kendall, Henry Clarence, Australian poet; born Ulladulla, New South Wales, 1841; died Redfern, near Sydney, 1882; see page 4206
Kenilworth. Market town in Warwickshire, 4 miles north of Warwick. The

shire, 4 miles north of Warwick. The 12th-century castle, made famous by Scott's Kenilworth, is one of the largest and finest ruins in England. (6800): see pages 6235, 963 Kenmare, Kerry, Mushroom Rock, 2007 Kennedy, Edmund, Australian pioneer; died 1848 while exploring Cape Yorke Peninsula: 6069

Kennedy Channel, in Arctic, 6434 Kennel, making one, and pictures, 378 Kenneth I, MacAlpine, Scottish chief who united Scotland in one kingdom;

kennern I, macAlpine, Scottish chief who united Scotland in one kingdom; died about 860: see page 594
Kensington Gardens, London, Peter Pan's statue, 4232
Wren's Orangery, 6250
Kent, William, architect who designed the Horse Guards, Whitehall, 6470
Kent. South-eastern English county; area 1555 square miles; population 1,145,000; capital Maidstone. The most famous historically of the counties, it was the way by which the Romans, the Jutes, and St. Augustine entered Britain; here are Canterbury, and several ancient Cinque Ports, notably Dover, Hythe, and Sandwich. At the mouth of the Medway are Chatham, Rochester, and Gillingham, forming an important industrial area; the Isle of Thanet is famous for its watering-places; and other notable features are ing an important industrial area; the Isle of Thanet is famous for its watering-places; and other notable features are the North Downs, the Weald, and Romney Marsh. The most famous seaside resorts are Ramsgate, Folkestone, Margate, Broadstairs, and Deal; other places are Dartford, Tonbridge, Tunbridge Wells, Ashford, Sheerness, Gravesend, Faversham, and Sevenoaks. Kent is famous for its hops, fruit, and sheep, while its fisheries are important. Coal is mined near Dover, and Whitstable has oyster beds ancient kingdom, 588, 2398

Kentigern, St., patron saint of Glasgow, who is said to have been born at Culross about 510. He made many converts, but had to take refuge in Wales for 20 years, during which time he and St. David founded the monastery of St. Asaph. In 560 he returned to Glasgow with many Welsh followers, and sent out missionaries to the Picts and Scots Kentish plover, bird in colour, 2898

with many Welsh followers, and sent out missionaries to the Picts and Scots Kentish plover, bird in colour, 2898 Kentucky. Largest American tobacco-producing State, on the left bank of the Mississippi; area 41,000 square miles; population 2,500,000; capital Frankfort. Louisville (240,000) is the largest town. Abbreviation, Ky. Abraham Lincoln's birthplace, 1644 Anderson's Creek, 1644 State dag, in colour, 2410 Kenwood House, Hampstead, 4227 Kenya Colony. British East African colony; area 200,000 square miles; population 2,600,000; capital Nairobi (24,000). The interior consists largely of healthy uplands, where, since the building of the Uganda Railway to Lake Victoria, many British settlers have made their homes. Cereals, coffee, beans, sisal, and linseed are grown, and sheep and ostrich farming and dairying are important. Mombasa is the chief port: 3314 flag in colour, 2408 Mombasa, street scene, 3321 native working in fields, 3317 planting beans in Kikuyu, 3322 map of industries, 3196–97 map of physical features, 3198 Kenya, Mount. Isolated mountain peak in Kenya Colony, East Africa. Its lower slopes are clothed by forests, but its summit, is always covered with snow.

slopes are clothed by forests, but its summit is always covered with snow. 17,000 feet: 6742

Kepler, John, German astronomer, assistant of Tycho Brahe; born Wurtemberg 1571; died Ratisbon 1630; discoverer of the laws of planetary motion: 3492, 4713 his study of Moon's craters, 3482 diagram of law that led to discovery of

gravitation, 4713 Tycho Brahe explaining globe to, 3490 Kerb, why has every pavement a kerb?

Acid With his every pavement a kero (4639)
Kerbela, Mesopotamia, Moslem sacred city, 6385
Kerensky, Alexander, Russian republican leader, 5898
Kerman, Persian city trading in carpets, silk, dates, and camel-hair cloth. 50,000
city gate, 6393
Kermess, picture by Teniers, 1422
Kerner, Anton, German botanist, on seeds produced by various plants, 3888
Kerosene, product of petroleum, 2966
Kerry. Rugged western county of Munster, Ireland; area 1815 square miles; population 160,000: capital Tralee. Here are the Lakes of Killarney, and Carrantuohill, 3414 feet, the highest Irish mountain

larney, and Carrantuohill, 3414 feet, the highest Irish mountain Kerry blue terrier, 668
Kerry cattle, characteristics, 1154 picture, 1160
Kestrel, bird, flying powers, 3628 in colour, 3023
South African, 3636
Keswick. Market town and tourist centre in Cumberland, at the lower end of Lake Derwentwater. (5600)
Kethe, William, Scottish Protestant divine and poet; died about 1608: for poem see Poetry Index
Kettering. Northamptonshire market town, manufacturing boots, shoes, and clothing

town, manufacturing boots, shoes, and clothing
Kettle, Tom: for poem see Poetry
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why lid jumps up and down, 3331
what makes the kettle boil? 1175
why does it not get red-hot? 5614
why does the kettle sing? 2297

why does the kettle sing? 2297
why is a marble put into a kettle? 439
Kew Bridge, Surrey, 6471
Key, Ellen, Swedish author and educationist; born Sundsholm, Smaland, 1848: see page 4942
Key industry, branch of industry on the prosperity of which various other industries depend. Shipbuilding is a good instance of a key industry
Kg, stands for kilogramme, a French weight

weight

K.G. stands for Knight of the Garter K.G.F. stands for Knight of the Golden

Fleece (Spain and Austria)
Khabarovsk. Siberian fur-trading centre on the Amur. 60,000
Khafra, ancient Egyptian king, 6868

sculpture, 3894 Khama, Bechuana chief, 3312 Kharkov. Capital, university, and trading centre of the Ukraine, Russia, 260,000

260,000
Khartoum. Sudanese capital, at the junction of the Blue and White Nile. Famous as General Gordon's head contains a cathedral and the Gordon Memorial College. 35,000 siege by the Mahdi, 6862 railway bridge over Nile, 3321 railway station, 3320
Khatmandu. Capital of Nepal, India. 80,000

80.000

80,000
Khatti, site of ancient Hittite capital Boghaz-Keui, 6985
Khayyam, Omar: see Omar Khayyam Kherson. Russian Black Sea port. exporting grain and timber. 90,000 John Howard dies there, 5450
Khingan, Manchuria's mountain boundary, 6504
Khirgiz. Turki race of the Northern Mongol division. They resemble the true Mongols with flat features, oblique eyes, large feet, hands, and mouth,

yellowish brown complexions, and short figures. They are highlanders, and are to be found in the Tian-shan and Pamir valleys, 6016 Chinese Turkestan partly peopled by

Chinese Turkestan partly peopled by them, 6503
Khiya. Capital of Khiya, Russian Turkestan, trading in carpets, cotton, and silk: 10,000: see page 6016
Khokand. Ancient city in Russian Turkestan, trading in velvets, cutlery, and silks, 125,000
Khond, tribe of central India, 1942
Khorsabad, Mesopotamia, palace of Sargon, 6858
Khotan, Central Asian city, 6503
excavations by Sir Aurel Stein, 6994
Khufu: see Cheops
Khyber Pass, Mountain highway which

Khuber Pass. Mountain highway which from the earliest times has been the road of invaders entering India. Running for about 30 miles among the

Running for about 30 miles among the wild border ranges of Afghanistan, it is traversed by the trade route from Kabul to Peshawar Kiang, animal of Tibet, 1900, 1895 Kiaochow, Chinese port ceded to Germany, 3421, 6504

Japanese help to capture it, 6620 Kickshaw, something small or trifling; a fancy dish. From the French Quelque chose, something Kick starter, on motor-cycle, 4328

Kidderminster. Worcestershire town with a famous manufacture of carpets. 27,000

27 000

Kidney oxyria: see Mountain sorrel Kidney vetch: see Lady's fingers Kidneys, blood partially purified by capillaries in, 1198 Kidwelly. Old town in Carmarthenshire containing remains of a fine 11th-century castle. (3200) Kidwelly Castle, view, 964 Kiel. German naval port on the Baltic, near the eastern entrance to the Kiel Canal. It has large shipbuilding yards and a busy export trade. 220,000 sbip-building, 4426 Krupp works, 4434 Kiel Canal. Or Kaiser Wilhelm Canal, famous German artificial waterway confamous German artificial waterway con-Kidney oxyria : see Mountain sorrel

Kripp works, 4434
Kiel Canal. Or Kaiser Wilhelm Canal, famous German artificial waterway connecting the North Sea with the Baltic. It runs from near the Baltic port of Kiel to the estuary of the Elbe at Brunsbittel, and is 36 feet deep and 330 feet wide on the surface; the double locks at the entrances are among the largest in the world, and the shipway is lit by electricity throughout. Begun in 1887, the canal was finished in 1895, but was later widened and deepened to allow for large battleships passing through merchant ship passing through related the ship passing through and writer, 4939
Kiev. Historic city of the Ukraine, Russia, on the Dnieper. It has an 11th-century cathedral and a famous university, while the gilded domes and pinnacles of its many churches give it a striking appearance. 600,000
Russia's holy city, 5893, 6020

pinnacies of its many churches give it a striking appearance. 600,000 Russia's holy city, 5893, 6020 milkmaids of, 6015 Nicholas Suspension Bridge, 6025 Kikuyu, Kenya, natives planting beans, 3322

Kikuyu, Kenya, natives planting beans, 3322
Kilauea. Active crater on the slopes of Mount Mauna Loa, Hawaii. Three miles long and two miles broad, it contains a constantly moving lake of lava molten lava pours forth, 517
Kildare. County of Leinster, Ireland; area 654 square miles; population 67,000; capital Naas. In the northern part is much of the Bog of Allen Kildare. Cathedral and market town of Co. Kildare
Kilimanjaro. Highest mountain in Africa, in Tanganyika Territory. It consists actually of two extinct volcanic peaks, joined by a ridge, and is clothed by a belt of forest six miles wide.

19,320 feet: see page 6742
temperature on, 2618
picture, 3322

Kilkenny. County of Leinster, Ireland; area 796 square miles; population 75,000; capital Kilkenny...

Alkenny, County of Leinster, Ireland; area 796 square miles; population 75,000; capital Kilkenny, on the Nore. It has a 13th-century cathedral, a medieval castle, and remains of two monasteries and a reund tower. 10,500 Killane, Town of Co. Clare, on the Shannon. It has a fine 12th-century cathedral. (900) Killarney, Cathedral town and tourist centre in Co. Kerry, near the Lakes of Killarney, (8000) Killarney, Lakes of. Three Irish lakes among beautiful wooded scenery near Killarney, Co. Kerry seen from air, 210 Brickeen Bridge, 3069 Colleen Bawn rocks, 3068 Meeting of the Waters, 3068 Meeting of the Waters, 3068 Killer whale: see Grampus Killybegs, Ireland, haven in Donegal Bay, 3068 Kilmarnock. Town of Ayrshire, with foundry, engineering, textile, and leather industries. 36,000 Kilmer, Joyce, American author and editor; born New Brunswick, N.J., 1886; died in 1918: for poems see Poetry Index Kilmore. Cathedral town in Co. Cavan, Ulster. (3500) Kilowatt-hour, definition: see Weights and Measures, units of electricity Kilpeck, Herefordshire, Norman gate, 719

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Kimberley. South African cathedral city in Griqualand West, Cape Province. Here are the De Beers diamond minos, the mest important in the world, around which the city has grown up since 1870. It underwent a severe siege by the Boers, 1899-1900. 50 000

Kincardine. Eastern maritime county of Scotland; area 382 square miles; population 42,000; capital Stonehaven

Kinchinjunga. Second tain in the Himalayas. 5620 Second highest moun-malayas. 28,150 feet: view, 2247

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King's County. County of Leinster, Ireland; area 773 square miles; population 57,000; capital Tullamore.

Here is much of the Bog of Allen

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Hampshire, 1875: see pages 404, 3580 on God making the world, 2225

on God making the worm, poetry of, 4081 looking Westward Ho, 3581 portrait, 399, 1827 for poems see Poetry Index Kingsley, Henry, English novelist; brother of Charles Kingsley; author of Geoffrey Hamlyn and Ravenshoe; born Barnack, Northamptonshire, 1830; died Cuckfield, Sussex, 1876; for ed Cuckfield, Sussex, poem see Poetry Index

poem see Poetry Index
King's Lynn. Picturesque Norfolk port
near the entrance of the Ouse to the
Wash. The Hanse merchants had a
house here in the 15th century, and
there are several ancient churches
and a Tudor guildhall. 20,000
King's Night of Terror, story and
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King's Old Friends, story, 4612
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picture, 4613

picture, 4613
King Solomon's Mines, Rider Haggard's story, 3712
King's Speech, debate on, and meaning of phrasing, 4537
Kingston. One of the oldest cities of Ontario, Canada, having risen around the French Fort Frontenac. It has a university, two cathedrals, and shipbuilding and engineering industries.

22,000
Kingston. Canital and port of Lympics

Kingston. Capital and port of Jamaica, with a magnificent harbour. A great export and import centre, it has a delightful climate, but is subject to hurricanes and earthquakes. 60,000

harbour, 3556 Kingston-upon-Thames, Surrey, old

Kingston-upon-Thames, Surrey, old coronation stone, 4863
Kingstown. Outport of Dublin, on the south shore of Dublin Bay. It has a regular passenger steamship service with Holyhead. 17,500
Kingstown. Capital and port of the Windward Island of St. Vincent, exporting sugar, cocoa, spices, and arrowroot. (5000)
King's Watchers, story, 3009

Kingsway, London, 5637 King Who Came to Cashmere, story, 904

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annoenteven, Argyllshire, river imprisoned in pipes, 5605.

Kinross. Second smallest Scottish county; area 82 square miles; population 8000; capital Kinross. Here is Loch Leven

Kipling, Rudyard, English author and poet; born Bombay 1865: see pages 3714, 4083

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Kirkby Lonsdale, Westmorland, old
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Kirkeudbright, South-western Scottish

Kirkeudiright. South-western Scottish county; area 900 square miles; population 37,000; capital Kirkeudbright. Cattle-raising is important Kirkham Castle, Yorkshire, 964 Kirkstall Abbey. Ruins near Leeds of a splendid 12th-century Cistercian monastery, 962 painting by Thomas Girtin, 2423 Kirkwall. Capital and fishing port of the Orkney Islands, with a 12th-century cathedral. (3700) Kishenev. Now Chisinau, chief commercial centre of Bessarabia, Rumania. 120,000

120,000 Kitchener of Khartoum, Horatio Herbert, Earl; born Ballylongford. Co. Kerry, 1850; lost at sea, 1916; conquered the Sudan 1898; organised the British Army (1914–15) battle of Omdurman won by him, 33.5

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Kite meteorograph, device carried by a kite for obtaining atmospheric records at considerable heights
Kite-tailed tyrant bird, 3147
Kit's Coty House, Kent, ancient British

Kit's Coty House, Kent, ancient British monument, 417
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Kjolen Mountains. Long mountain
chain which divides northern Norway
from Sweden. Sulitchma, 6150 feet,
is its principal peak, 5769
Klagenfurt, Austria, rhinoceros and
dragon-slaying tradition, 1773
Klausenburg, Cluj, or Kolozsvár, important city of Rumanian Transylvania,
65,000
Klipspringer, African antelope, 1400

Klipspringer, African antelope, 1400
picture, 1401
Klopstock, Friedrich Gottlieb, famous
German religious poet, author of The
Messiah; born Quedlinburg 1724;
died Hamburg 1803; see page 4698

Km. stands for kilometre, measure, equal to § mile

Knapweed, member of Composite family, 4414
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Knaresborough Castle, Yorkshire, 964
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Kneller, Sir Godfrey, German portrait painter, Sir Peter Lely's successor at the English Court; born Lübeck 1614; died London 1723: see page 1928
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Duke of Marlborough, 1926
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1812; died Yarmouth 1887: see 1264
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Kolhers, War between Frederick the Great, with 34,000 men, and Daun with 60,000 Austrians. Frederick was defeated with a loss of 12,000 men and 40 guns, and his siege of Prague Knight and the Wonderful Stone, story, 784
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Knot (in Heraldry), 926
Knot, in seamanship, a measurement of a ship's speed, so called from the knots at regular intervals on the log-line. The speed is reckoned in knots; that is, nautical miles per hour Knot grass, not really a grass, 2186
Knot-stitching, how to do it, and picture, 4831
Knott, Raiph, English architect, designer of the London County Hall; born 1878: see pages 4229, 4225
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Knowles, G. Sheridan, English artist;
born Manchester 1863; Good King
Wenceslas, painting by, 3934

sounds by observing changes in flames caused by different sounds Kohaku, her offering, story, 2142
Kohl-rabi, vegetable, 2436, 2437
Kolbe's vulture, bird. 3635
Kolin, battle of, fought in 1757 during the Seven Years War between Frederick the Great, with 34,000 men, and Daun with 60,000 Austrians. Frederick was defeated with a loss of 12,000 men and 40 guns, and his siege of Prague was raised
Kols, also known as Kolarians. These people formerly lived on the Bengal plains, but now live in the hills between Upper and Lower Bengal. They are a mixed race showing Caucasic as well as Mongoloid features. They have a fine creet carriage and walk with a long, free stride fine creet carriage and walk with a long, free stride Koltsov, Alexis, Russian peasant poet, called the Russian Burns; born Voronezh 1809; died 1842; see page 4818 Komensky, John Amos, called Comenius, Czech theologian and educational reformer; born probably Ungarisch-Brod, Moravia, 1592; died in Holland 1670; see pages 4552, 4960 portrait. 4955 normal 107: see pages 4502, 4900 portrait, 4955 Konia. Ancient Iconium, Anatolian city making silks and carpets. 45,000: see page 5030 city making silks and carpets. 45,000:
see page 5030
König, Frederick, German printer;
born Eisleben, Prussia, 1774; died
1833; inventor of the steam-press: see
pages 1518, 1517
printing machine invented by, 1515
Königsberg, Capital of East Prussia,
Germany, on the Pregel. It has a
university and a 14th-century Gothic
cathedral. 250,000: see page 4424
15th-century castle, 4435
Konik, Polish pageant, 6132
Koniscope, device for rendering visible
and estimating the amount of dust
in the air
Kopts or Copts: see Egyptians
Koran, Mohammedan Bible, 5086
book of books in Arabic, 5677
camel described in Koran as instance of
God's wisdom, 1525
in Eastern literature, 5673, 5677
what is the Koran? 5366 Kordofan, Sudan, gum arabic trees, 2941
Korea. Country of eastern Asia, a
Japanese dependency since 1910.
85,000 square miles in extent, it produces much rice, maize, millet, barley,
beans, hemp, and cotton, while cattleraising is important. The people are
indolent and backward, and the only
great town is Seoul, the capital;
Chemulpo and Fusan are ports. Population 17,500,000: see page 6614
Russia threatens, 5898
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scenes, 6630-31 scenes, 6630-31 Koreans, mainly a Northern Mongolic race, but showing some Caucasic features, probably due to Korea's being first inhabited by invaders,

Marco Polo welcomed by, 771, 6512

Kubl white neolithic people from the West. At one time (934-1368) trade, industry, and the arts flourished in Korea, but in succeeding centuries the people became indolent and repulsive, though still remaining very honest. They have never shown any religious sentiment Korean sea-eagle, bird, 3636 Kosciusko, Thaddeus, Polish patriot and general; born Mercezowszczyzna, Lithuania, 1746; died Solothurn, Switzerland, 1817: see page 6133 Kosciusko, Mount, Australia, 2456, 2571 Kosciusko, Mount, Australia, 2456, 2571 Kosice: see Kaschau Kossovo, Serbia, Turkish victory at. Kossvo, Louis, Hungarian patriot, leader of the revolt against Austria in 1848: bern near Zemplin 1802; died Turin 1894: see pages 896, 889 Kostroma. Old Russian cathedral city on the Volga, making textiles. 45,000 Kovno. Now Kaunas, capital of Lithuania, on the Niemen. It has a large transit trade, especially in timber. 100,000: see page 6022 Kovynjik, site of ancient Nineveh, palace of Sennacherib at, 6860 Koweit, Arabian port on the Persian Gulf. 50,000: see page 6261 Baghdad Railway's projected terminus, 6267 Baghdad Railway's projected terminus, 6267
K.P. stands for Knight of the Order of St. Patrick
Krafft, Adam, German Renaissance stone-carver; born probably Nuremberg about 1451; died probably near there 1507: see page 4644
Krait, deadly Indian snake, 4620
Krak, Prince, Polish legendary ruler, 6131
Kraktaa, East, Indian island lying Krakatoa. East Indian island lying between Java and Sumatra. It once occupied 18 square miles, but in 1883 a tremendous volcanic eruption from an old crater blew away two-thirds of it, hurling thousands of tons of ash and pumice into the air. The explosion was heard 2000 miles away, and was followed by tidal waves which drowned thousands of people: 520, 4520 Krakof: see Cracow Krasinski, Sigismund, Polish poet; born Paris 1812; died there 1859: see pages 4486, 6135 Paris 1812; died there 1850: see pages 4486, 6135
Krefeld. Or Crefeld, German silk and velvet-making centre in Rhenish Prussia, 130,000
Kremenchug. Russian city on the Dnieper, trading in wool, grain, timber, and tobacco. 100,000
Kremlin, Moscow's medieval fortress, 6019, 6728
what is the Kremlin? 6728
picture, 6013
Krishnarajasagara, India, dam, 5971
Kronstadt. Or Brassó, old city of Rumanian Transylvania. 45,000
Krupp, German steelworks at Essen, 4426
Krus, dwellers by the West African 4426
Krus, dwellers by the West African coast from below Monrovia to Cape Palmas. Originally living in the interior of Africa, they have developed a great love for the sea, and are much employed by European skippers trading on that coast. They are hard-working and cheerful, but very greedy, brutal, and drunken: 6744
Krylov, Lyen Pussian writer of foldes. And Grunden: 6742 Krylov, Ivan, Russian writer of fables; born Moscow 1768; died St. Peters-burg in 1844 translated La Fontaine's fables, 4817 K.T. stands for Knight of the Order of the Thistle t. Bach, or K.B., stands for Knight Bachelor Bachelor
Kuala Lumpur, chief town of the
Federated Malay States. (80,000)
Government buildings, 3434
Kuban, Russian black soil region, 6017
Kublai Khan, Mongol emperor of
China, patron of Marco Polo; born
about 1216; died 1294
Japan invaded by, 6616
Marco Polo welcomed by, 771, 6519

Kudos, Greek word meaning renown; used in conversational English in a similar sense

Kudu, antelope related to cland, 1399 picture, 1403 Ku Klux Klan, American secret socie

Ku Klux Klan, American E.

revived, 3798
Kum, Persia, Fatima's shrine, 6395
Kumquat, fruit, what it is, 1814
K'ung-Fu-tse: see Confucius
Kurds, modern representatives of the
ancient Medes who are speakers of an
Arvan language. They inhabit Kur-

distan
Kure. Japanese port and naval station
in Honshu. 130,000
Kuria Muria Islands, dependency of

Aden, 3418 Kurile Islands. Volcanie island chain stretching from Japan to Kamchatka. Most of them are inhabited only during

the summer fishing season: 6613 Kustenje: see Constantza Kustenland, Italy absorbs Austrian province, 4548

Kutab Minar Mosque, at Delhi, 5627 carving on, 5634

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Kut-el-Amara, tragic surrender by
British after siege of 143 days (191516): see page 1710
mosque, 6273
street, 6273
Kwen Lun. Lofty mountain chain
stretching for 2000 miles through
China, Tibet, and Kashmir. At its
western end it is 20,000 feet high:
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Kyanite, silicate of aluminium, 1303 Kymograph, device for recording and measuring variations of fluid pressure, as of the blood

Kynance, Cornwall, coast scene, 843 Kyoto. Capital of Japan 794-1869, and centre of the Japanese artistic industries. 615,000: see page 6619

Laban, father of Rachel, 748, 866 Labat, French merchant, how he saved his son, story, 6932 La Belle Jardinière, Raphael's picture,

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Laberius, Decimus, Roman poet and dramatist; born about 105 B.C.; died Puteoli 43: see page 5427
poem translated: see Poetry Index Labiate family of plants, 4544, 4782, 5022, 6011
Labore et honore, Latin for By labour

and honour Labour, human effort by hand and brain, 5137

division of labour, 5016 reward of labour, 5638 value of article not determined by, 5516

value of article not determined by, 5516
Labourer, Langland on labourer of
Middle Ages, 3638
Labour Party, British, 1714
Labrador. Territory of Newfoundland
on the Canadian mainland; area
300,000 square miles; population 4000.
The climate is cold and the country
rugged; fishing is the only industry,
though there is believed to be mineral
wealth wealth

Frobisher's voyage, 4600, 5206 Cape Harrison, 2329 fishing fleet in Indian Harbour, 2329

fishing fleet in Indian Harbour, 2329
Labradorite, mineral, 1303
La Brea, Lake, pitch lake, 6730
La Bruyère, Jean de, French philosophical writer; born Paris 1645; died Versailles 1696: see page 4255
Labuan. British sago-producing island off the Borneo coast; area 28 square miles; population 7000. It is one of the Straits Settlements 3420 flag, in colour, 2407

flag, in colour, 2407

Laburnum moth, seen through micro-scope, 1911

scope, 1911 Laburnum tree, described, 4042 with flowers and leaves, 4160 Labyrinth, of King Minos, 322 site of famous labyrinth of Herodotus discovered by Petrie, 6857 Labyrinthodonts description, 1260

Lac, obtained from banyan tree, 3051 Lac-insect, 5722 Laccadive Islands. Island group in the

Indian Ocean; area 80 square miles; population 11,000. Under Madras administration, they are engaged in the coir and coconut trade

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Cluny lace. 6734 ture, 1669-1672 imperfect stitches repaired, 1672 lady in lace dress, 1669 Lace-bark tree, uses of bark, 2566 Lacedaemon, founder of Sparta, 5372 Lacerated nitophyllum, seaweed, 3415 Lacewing fly, habits of larvae, 6458 insect, in colour, 5713 La Chance de Jacques le Simple, story in French, 5466 Lachesis, one of the Fates, 3518 directing man's actions, 6693, 6937 Lachish, archaeological discoveries at, 6984

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Jackian. Tributary of the Australian Murray in New South Wales. 850 miles: 6064 Lackagh Bridge, near Rosapenna,

Donegal, picture, 3069
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La Condamine, discovered rubber in 1731 in Peru and Brazil, 1165

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Lacrosse, how to play, 6925
Lact-albumen, what it is and its albumen,

Lact-albumen, what it is and its value, 3651
Lactic acid, what it is, 1931
Lactometer, measures density of milk Lacuna, gap or missing part, especially in old manuscripts. The word comes from the Latin lacus, lake
Ladoga, Lake. Largest lake in Europe, in north-west Russia. 7000 square miles in extent, it is 31 times as big as the Late of Canava: the Nava which

the Lake of Geneva; the Neva, which drains it, carries down into the Gulf of Finland 100,000 cubic feet of water a second: 5490, 5902

second: 5499, 5902
Ladon, Greek river, story, 3530
Ladrone Islands. Volcanic island group
in the north-west Pacific. Discovered
by Magellan in 1521, they were sold by
Spain to Germany in 1899, and in 1920
passed under Japanese mandate. Guam
belongs to U.S.A.

Lad who Slept at his Post, story. 5216 Lady Agnes of St, Dunstan's Tower, story. 2760 Lady Amherst's pheasant, bird, in

Lady Amherst's pheasant, bird, in colour, 3263
Lady-bird, protects roses, 6334
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eyed lady-bird, in colour, 6336
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facing 6327 life-story, 6456 Lady Cockburn and her children, paint-ing by Sir Joshua Reynolds, 2052

ing by Sir Joshua Reynolds, 2052 in colour, 2178
Lady Day: see Quarter Days
Lady fern, in colour, 1799
Lady of the College, Milton's nickname at Cambridge, 4480
Lady of the Woods, name of silver birch, 3787
Lady's bedstraw, member of Bedstraw family, 2683

Lady's bedistraw, memoer of Bedistraw family, 2683 flower, in colour, 4288 Lady's fingers, or Kidney vetch, what it is like, 4416 flower, in colour, 4419 Lady's mantle, what it is like, 5518 flower, in colour, 5521

flower, in colour, 5521 Ladysmith. Town of Natal, South Africa, famous for its defence by the British in the Boer War. (6000): see

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sopher and orator; flourished about

Laelus, Caius (Sapiens, Aomai panosopher and orator; flourished about 140 B.C.

Laennec, René, French physician; born Quimper, Brittany, 1781; died Douarnenez 1826; inventor of the stethoscope: 2504

treating patient, 2503

Laertes, character in Shakespeare's Hamlet, 6164

Polonius's advice to, 6531

La Farge, John, American decorative painter; born New York 1835; died there 1910: see page 3287

Christ and Nicodemus, 3296

Wolf Charmer, 3296

Lafayette, Joseph de, Marquis, French soldier and stadesman; born Auvergne 1757; died Paris 1834; Washington's ally in America and a great figure of the French Revolution: 650 portrait, 647

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La Fontaine, Jean de, most famous
French writer of fables; born ChateauThierry 1621; died Paris 1695
fables translated into Russian, 4817
Lafrance, Jules, St. John as a boy,
sculpture, 4651
Lafresnaye's bee eater, bird, in
colour, 3144
Lagan. Irish river on which Belfast
stands

Lagan. stands

stands
Lagash, Babylonian city excavated by
de Sarzec, 6860
Lagerlöf, Selma, Swedish novelist;
born Marbacka, Vermland, 1858; winner of Nobel Prize for literature, 4942
La Gioconda: see Mona Lisa
Lagos. Capital, port, and commercial
centre of Nigeria, with a good harbour.
60.000

60,000 native girl guides, 3313

native giri guides, 3313
La Grue et le Crabe Prudent, story in
French, 6446
La Guayra. Port of Carácas, capital
of Venezuela, trading in cotton, sugar,
hides, coffee, cocoa, and indigo. hides, coffee, 15,000

La Hogue, battle of. Sea-fight in 1692 between the combined fleet of 99 Eng-lish and Dutch ships and 44 French ships under the Comte de Tourville. The French were preparing an expedi-tion against England, but were severely

defeated on their own coast: 3932
Lahore. Capital and railway centre
of the Punjab, India, with two cathedrals and splendid native buildings.
280,000

280,000
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what is the great pitch lake of Trinidad? 6730 which are the biggest lakes in the world? 5490

GREAT LAKES OF NORTH AMERICA Area in square miles, with greatest length and breadth in miles, and depth

Length Breadth Depth Superior .360 .160 .1012..32,060
Michigan..307 .118 .870..22,336
Huron .206 .101 .750..22,378
Erie .241 .57 .210 .9968
Ontario .193 .53 .738 .7243

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Lakh of rupees, 100,000 Indian rupees, equivalent at the face value of the rupee to £10,000. Lakh or lac is from the Sanskrit laksha, meaning one

hundred thousand
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Lancashire. North-western English county; area 1870 square miles; population 4,930,000; capital Lancaster. The centre of the English cotton industry, and standing on a coalfield, the southern part is covered with a network of industrial towns, of which Manchester is the commercial centre and Liverpool the port. Among them are Salford, Ashton-under-Lyne, Blackburn, Oldham, Bury, Burnley, Rochdale, Wigan, Bolton, Widnes, St. Helens, Warrington, and Preston, all of which are engaged either in the cotton trade or in the chemical and engineering industries. Iron is mined in Furness in the north, where Barrow is a great engineering centre; Blackpool. Lancashire. North-western English in Furness in the north, where Barrow is a great engineering centre; Blackpool. Southport, Lytham, St. Anne's, and Morecambe are popular watering places; and Ormskirk is the centre of an agricultural district. In Furness is part of the Lake District cotton industry, 172, 337 why is Lancashire the cotton county?

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1834; traced the Niger to its mouth: see page 3000
Landes. Sandy district in south-west France, containing many lagoons and marshes and extensive pine forests: see page 2127
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Land of Nod, picture to poem. 5790
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and prose writer; born Warwick 1775;
died Florence 1864: see page 3956
for poems see Poetry Index
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Landseer, Sir Edwin, English animal
painter; born London 1802; died
there 1873: see page 2544
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Land's End. Westernmost point of
Great Britain lying une miles from
Penzance in Cornwall. From here to
John o' Groats is usually considered
the extreme length of the island
view of cliffs, 1715
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and writer of fairy tales; born Selkirk
1814; died Banchory, Aberdeenshire,
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author of the Vision of Piers Plowman
born probably Shropshire about 1330;
died about 1400: see page 3638
poem: see Poetry Index
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inventor; born Roxbury near Boston
1834; died Washington 1906; maker
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Laocoon walnut moth, of Brazil, cater-pillar, in colour, 6269 Laomedon, Breaker of Promises, story,

Laomedon, Breaker of Promises, story, 6699.

Laon. Historic city of northern France, having been the capital of the West Franks. Formerly a strong fortress, it has a fine Gothic cathedral and a bishop's palace. 20,000 cathe Iral, 5988, 5997.

Laotsze, Chinese philosopher, founder of Taoism; born about 604 B.C.: see page 5080.

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La Paz. Chief commercial city of
Bolivia, standing nearly 12,500 feet
above the sea. 110,000: see 7014
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La Pérouse, Comte Jean de, French
navigator, rival of Captain Cook: born
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La Plata. Wide South American estuary on which Buenos Aires and Monte Video stand. 145 miles broad at its mouth, it receives the Paraná and Monte vineo stand. 145 miles broad at its mouth, it receives the Paraná and Uruguay rivers and drains 1,400,000 square miles. 200 miles: 6999
La Plaia, town of Argentina, 7013
Lappet moth, and caterpillar, in colour, feeing 5035.

Lappet moth, and caterpillar, in colour, facing 5935
Lapps. A kindred race to their neighbours the Finns. With the allied Samoyedes they are the only true nomads still remaining in Europe. They are of Northern Mongol origin, and still retain the round, low skull, prominent cheek-bones, and flat features of the Mongol. They wander over the extreme north of Europe family at home 5771

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Larne. Port of Co. Antrim, Northern
Ireland, making linen and paper.
There is regular steamship communication with Stranraer in Scotland, (7100)
La Rochelle. French fortified scaport
on the Bay of Biscay, with a considerable shipbuilding industry and a large
trade. In the 16th and 17th centuries
it was the chief Huguenot stronghold,
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Tasmania on the Tamar. Here is a
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Meditation, 3171

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Laurie Island, W. S. Bruce's winter quarters, 6556
Lausanne, Swiss city near Lake Geneva, famous as an educational centre. It has a university and a fine Gothic cathedral. 68,000: see page 4763
Notre Dame Cathedral, 4667
Laus Deo, Latin for Praise to God painting by Solomon J. Solomon, 3461
Lava, like a honeycomb, 2005
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Laval. Old French town on the Mayenne, with a fine 12th-century cathedral and castle and a large manufacture of

and castle and a large manufacture of linen. 30,000

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Lawers, Ben. Peak of the Grampians in Perthshire. 3990 feet
Lawes, Henry (1596-1662), musical composer, and friend of Milton, 1234
Law lord, who he is, 4536
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Law of motion, Newton's first law, 3649
Lawrence, Friar, character in Shakespeare's Romeo and Juliet, 6161
Lawrence, of Bristol, sent first steamship from Bristol to London, 3736
Lawrence, Sir Henry, English general and administrator, defender of Lucknow in the Indian Mutiny; born Matura, Ceylon, 1806; died Lucknow in 1857
Lawrence St. descon to St. Sixtus

Lawrence, St., deacon to St. Sixtus who, when commanded by Valerian to give up the treaster of the Church, gathered together the poor and cripples of Rome, saving. These are the church's treasures." He was broiled to death over a slow fire Lawrence, Sir Thomas, English portrait painter; born Bristol 1769: died London 1830: see pages 2176, 5701 painting as a boy, 5605 portrait, 5601

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Laxey wheel, measurement, 5969
Layard, Sir Austen Henry, English archaeologist, excavator of Nineveh; born Paris 1817; died London 1894; see pages 6262, 6858
portrait, 1827
Lazgrette, hospital for the discoved

Lazaretto, hospital for the diseased poor, especially lepers; also a building or ship used for purposes of quarantine. The word is Italian, lazar (Lazarus) meaning a poor man. The French form of the word is lazarette Lazarus, tomb, 3470 Lazear, died while seeking cause of yellow fever, 2627 Lazuli bunting, bird, in colour, 3264 Lazy tongs, picture, 6351 lb. stands for pound or pounds (Latin, libra), 5008 L.C.B., means Lord Chief Baron

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3155 3155 boot manufacture, picture-story, 5481 load leaving tannery in Cuba, 3160 Russian skins carted to tanneries, 3154 skins being treated, 3154-3160 Leather buttons, why does a mattress have leather buttons? 4136

Leather-jacket, larva of crane-fly, 6085

L.C.C. means London County Council
L.G.J. means Lord Chief Justice
L.D.S. means Licentiate in Dental
Surgery

F.E. Egyptian pound, which is equal to
20s. 6jd. (nominal)
Lead, atom, 4101
conductivity: see Heat, Heat conductors
in British Empire, 1943
melting point: see Heat, melting points of metals
protection in X-ray work, 2466
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Leicester, Earl of, Spenser's patron, 740
portrait, 1077
Leicester. Capital of Leicestershire,
on the Soar. Founded in Roman
times, it became a centre of the wool
trade in the 13th century, and is now
famous for its hosiery and boot and
shoe manufactures. There are remains
of a castle and of the abbey in which
Wolsey died. 235,000: see pages 340,
466 Leadbeater's cockatoo, 3499 in colour, 3261
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Lead pencil : see Pencil
Lead kindly Light, story of hymn, 1760
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Lee, Sir Sidney, English author and biographer; born London 1859: see page 3838
Lee, River. Irish river flowing past Cork into Cork harbour. 45 miles Leeds. Chief centre of the Yorkshire cloth industry, on the Aire. An important railway and commercial centre, that happens when a leaf falls ? 5367
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looking through microscope, 1882
Leeves, William, English poet and musician; born Kensington 1748; died Wrington, Somerset, 1828: see 1265
Leeward Islands. British West Indian colony; area 715 square miles; population 130,000; capital St. John, Antigua. They consist of the presidencies of Dominica, Antigua, St. Kitts-Nevis, Montserrat, and the Virgin Islands, producing sugar, cotton, fruit. and cocoa, 3423
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The Sluggard, 4772 Spirit of the Summit, 2555
The Sluggard, 4772
Leighton Buzzard, woodland scene, 2373
Leinster. Eastern province of Ireland, comprising 12 counties; area 7624
square miles; population 1,165,000
Leipzig. Busy Saxon commercial city, famous for its great printing and book trades, its industrial fairs, its university, and its pianoforte, paper, chemical, and scientific instrument manufactures. 600,000: see 4426
Law courts, 4435
Leipzig, battle of. Fought between Napoleon and the allied Russians, Austrians, Prussians, and Swedes in 1813, and known as the Battle of the Nations. Blucher with 60,000, Schwarzenberg with 240,000, and Bernadotte with 135,000 men, pressed Napoleon so hard that his Saxon allies went over to the enemy, and he brought back only a part of his 300,000 men, 4298, 4310
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Leith. Port of Edinburgh, and since 1920 part of the city. It has ship-building yards and chemical works and a large harbour Leitrim. County of Connaught, Ire-

land; area 613 square miles; lation 65,000; capital Carri Carrick-on-Shannon

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Duchess of Cleveland, 1927
Mary Davis, 1926
Nell Gwynn, 1927
Thomas Stanley, 1924
Le Mans. Old capital of Maine, France, on the Sarthe. The cathedral is one of the most beautiful in France, with

the most beautiful in France, with a Romanesque nave 380 feet long, and a wonderful Gothic choir of the 13th century. There are manufactures

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Leon. Ancient capital of the former kingdom of Leon, with one of the loveliest cathedrals in Spain. 20,000: see pages 5270, 5994

Leon. Largest city of Nicaragua, with a cathedral and a university and a brisk trade in agricultural produce, timber, and minerals. 40,000

Leonardo da Vinci, Florentine painter, sculptor, engineer, and architect.

sculptor, engineer, and architect, greatest intellectual and artistic genius

greatest intenertial and arisetic genus of his day; born Vinci, near Florence 1452; died Cloux, Touraine, 1519; see pages 688, 6186 Botticelli's friend, 6678 compared with Rembrandt, 1559 Florence council hall decorated, 4730

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Le Sueur, Eustache, French historical
and portrait painter; born Paris 1617;
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town of Co. Donegal, Irish Free State, on the Swilly. (2200)
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Letters of Mark, commissions to private persons to prey on shipping of an enemy in war; abolished at Congress of Paris (1856)
Letton, John, first printer in the city of London; lived last half of the 15th century, dying probably 1483: see page 1517
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Lettre de Cachet, in France a sealed letter directing the arrest and imprisonment of a person without abolished by the Revolution

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Castle, barbican, 1592
Lewis. Northernmost and largest of the outer Hebrides; area 850 square miles; population 35,000. Stock-raising and fishing are carried on, Stormoway being the chief town: 765
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Leyden jar, electric condenser consisting of a glass jar lined inside and out with tin-foil for two-thirds of its height, 236, 235
Sir William Watson improves jar, 5326
Leys, Baron Hendrik, Belgian historical painter; born Antwerp, 1815; died there, 1869: see page 3399
Leys School, arms, in colour, 4989
Leyster, Judith, Merry Young Man, picture of, 3536
Leyton. Essex suburb of London, on the border of Epping Forest. 130,000
Lhasa. Tibetan capital, famous as a Buddhist forbidden city. Here are the immense palace of the Dalai Lama and huge monasteries, but up to 1904 the city had only once been visited by an Englishman. 25,000
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Lias rocks, found on coast from Yorkshire to Dorset, 1505
Libau. Latvian seaport exporting grain, linseed, lax, and dairy produce. Its harbour is free from ice for all but a fortnight in the year. 80,000: see page 6022
Liberator, The, anti-slavery newspaper in America, 3245

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Liberator, The, anti-slavery newspaper in America, 3245
Liberia. West African Negro republic; area 40,000 square miles; population about 2,000,000; capital Monrovia (6000). Founded by the American Colonisation Society in 1820 for the resettlement of freed slaves, it was recognised as independent in 1847. Palm kornels and oil, piassava, coffee, cocoa, ivory, and kola nuts are exported: 6744 flags, in colour, 4011

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chemist, father of organic chemistry;

died 1908: see pages 4941, 4037
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Liebig, Baron Justus von, German
chemist, father of organic chemistry;
born Darmstadt 1803; died Munich
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Liechtenstein. Principality on the
Upper Rhine, between Switzerland and
Austrian Vorarlberg; area 65 square
miles; population 11,000: see 6979
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Liège. Belgian city on the Meuse,
in a great coal-mining district. Besides woollens and leather, it has a
great manufacture of iron and steel,
the locomotive works at Seraing near by
being especially important. There
are a university and a 10th-century
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Astronomy tables
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the distance travelled by light in a
year. The distances of many stars
from the Earth have been calculated
by means of this stupendous figure of
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Lignite, varieties of lignite, 2714
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Ligurians. An ancient race of Mediterranean stock which still persists in
Sicily, South Italy, Sardinia, and Corsica. Coming from North Africa, the
Ligurians peopled Italy and penetrated
into the Rhineland
Lilac, relation of ash tree, 3787
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aeronlane: born Anklam, Pomerania.

Lilac, relation of ash tree, 3787
Lilienthal, Otto, German pioneer of the
aeroplane; born Anklam, Pomerania,
1848; killed flying 1896; see page 22
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Lille. Centre of the French textile
industries, near the Belgian frontier.
There are linen, cotton, thread, damask,
cloth, and tulle manufactures, besides
others of tobece, name, sugar, and others of tobacco, paper, sugar, and machinery. 205,000: see page 4170 Lily, Luther Burbank's experiments with, 6260

Lily, Luther Burbank's experiments with, 6260 section of anther under microscope, 3882 section of bud under microscope, 1915 lilium auratum, 6379 Madonna lily, 6379 Turk's cap, 6381 Victoria Regia, 3053 Lily-of-the-valley, what it is like, 4780 flower, 6382; in colour, 4905 Lima. Capital and largest city of Peru, seven miles from its port, Callao. Founded in 1535 by Pizarro, it has a fine cathedral and the oldest university in America; manufactures include textiles, pottery, paper, soap, dyestuffs, and tobacco. 180,000 Pizarro founds it, 6996 Limasol, Cyprus, general view, 3435 Limb, how to treat a broken limb, 6178 Limbourg, Poi de, Flemish painter, 1058 illuminated Book of Hours, 1051 Limburg, province of Holland, 5531 Limburg, Protuces of Holland, 5531 Limburg, Picturesque old cathedral city of western Germany, on the Lahn. 12,000 architecture of cathedral, 5991

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Limerick. County of Munster, Ireland; area 1064 square miles; population 145,000; capital Limerick. Dairy farming and stock-raising are important

portant
Limerick. Capital of Co. Limerick,
Munster, and third largest city of the
Irish Free State. Standing where the
Shannon becomes navigable, it is a
considerable port, dairy produce being
the chief export; there is also a famous
trade in lace. It has a Protestant and
a Roman Catholic cathedral. 39,000
view, 2070

a Roman Catholic cathedral. 39,0 view, 3070
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Limnometer, for recording continuously the height of water, particularly in a

the neight of water, particularly in a lake
Limoges. Old capital of the former
French province of Limousin, with a
famous porcelain industry. Its Gothic
cathedral, begun in the 13th century,
was completed in 1851. 95,000: see
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Limonite, brown iron ore, 1304
Limosin, Leonard, famous painter of
enamels, 6738
Limpet, characteristics, 5099, 6585
palate of, under microscope, 1910
sucker of, 6577
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Limpopo. South African river forming
the northern border of the Transvaal.
800 miles
Linarite, sulphate of lead and copper,

Linarite, sulphate of lead and copper,

Linchpin, pin passed through the axle-end to prevent a wheel from working its way off
Lincoln, Abraham, American states-man, President of the United States in the Civil War; born Hardin County, Kentucky, 1809; assassinated at Wash-ington 1865; liberated the slaves, 1638, 3245, 3680
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national memorial at Washington, 3790 national memorial at Washington, 3790 portrait of his stepmother, 1644 portraits, 1644, 3673 scenes of early life, 1644, 1645 sitting with his Cabinet, 3683 statue at Westminster, London, 1644 with his son Tad, 1644 Lincoln. Cathedral city and capital of Lincolnshire, on the Witham. One of the most ancient places in England, it has remains of Roman walls, the keep of a Norman castle, and several medieval buildings and churches;

the splendid cathedral, begun about 1030, is magnificently situated on a hill. Agricultural machinery is manufactured. 66,000; see pages 466, 5871 arms of the city in colour, 4991

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Ansen College, Oxford, arms in colour, 4988
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Lincolnshire. Second largest English county, being divided into three administrative counties—Lindsey, Holand, and Kesteven; area 2665 square miles; population 600,000; capital Lincoln. Mainly agricultural, it contains part of the Fens in the south, the lower course of the Trent in the north, and the Lincolnshire Wolds in the east; Grimsby, Grantham, Spalding, Boston, Louth, Horneastle, Stamford, Inmingham, Sleaford, Clecthorpes, and Gainsborough are the chief towns discovery of Anglo-Saxon burying place, 588
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Lincoln's Inn, barristers admitted to practise, 4777
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Lind, Jenny, Swedish 'singer; born Stockholm 1820; died near Malvern 1887; see page 5779
Linden: see Lime or Linden (tree)
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Lindisfarne manuscript, famous illuminated MS, in British Museum, 1923
Lindsay, Lady Anne, Scottish writer of songs; born in Fifeshire 1750; died
London 1825; see page 1265
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a 12th-century Romanesque cathedral.

30,000
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Linlithgow. Capital of Linlithgowshire,
standing 17 miles west of Edinburgh.
Here are ruins of the 15th-century
royal palace in which Mary Queen of
Scots was born. (4000)
Linlithgowshire. Scottish Lowland

Scots was dorn. (1900). Linlithgowshire. Scottish Lowlan county; area 120 square miles; population 85,000; capital Linlithgow Linnaea borealis, what it is like, 4781 flower in colour, 4905

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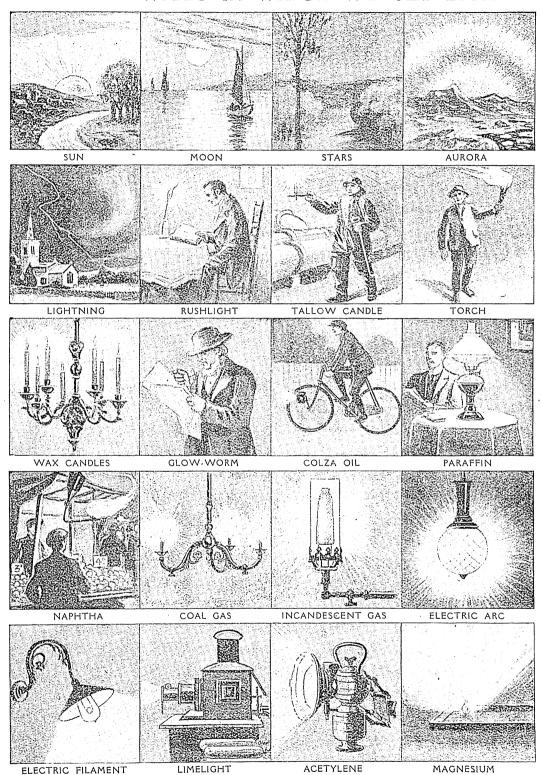
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Lippi, Filippo, Florentine painter, teacher of Botticelli; born Florence probably 1402; died Spoleto 1469: see pages 574, 825
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1 agum Baccalaureus

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the mouth of the Mississippi; area
49,000 square miles; population
1,800,000; capital Baton Rouge. It
produces much cotton, sugar, rice,
maize, and fruit, and has dense forests
of pine, cypress, oak, cotton-wood, and
magnolia. Here is the great port of New
Orleans, 390,000. Abbreviation La.
flag of State, in colour, 2410
negress picking pepper, 3796
Louisville. Railway centre and tobacco
market in Kentucky, U.S.A., on the
Ohio. 240,000
Lourdes. French pilgrimage town at
the foot of the Pyrenees, with a famous Ohio. 240,000 Lourdes. French pilgrimage town at Ohio. 240,000
Lourdes. French pilgrimage town at the foot of the Pyrenees, with a famous shrine in a grotto. (8000)
Lourengo Marques. Portuguese port in East Africa, on the fine harbour of Delagoa Bay. It is the terminus of the shortest railway route to the Transvaal. 20,000: see page 6750
Louth. Maritime county of Leinster; area 316 square miles; population 65,000; capital Dundalk
Louvain. Belgian university city, a famous ancient seat of learning. The cathedral and university library were destroyed by the Germans in 1914, but the splendid hôtel-de-ville or town hall remains. 45,000
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Lowell, City of Massachusetts, U.S.A.,
with cotton, woollen, and machinery
manufactures. 120,000
Lowestoft. Watering-place and important fishing port in Suffolk, near the
easternmost point of England. 45,000
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Loyola, Ignatius de, or Inigo Lopez

origin of name, 594
Loyola, Ignatius de, or Inigo Lopez
de Recalde, Spanish soldier and
monk, founder of the society of the
Jesuits; born near San Sebastian 1491:
died Rome 1556: see 1890, 3760
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L.R.C.P. means Licentiate of the Royal
College of Physicians
L.R.C.S. means Licentiate of the Royal
College of Surgeons
L.S. means Linnaean Society
L.S. A. means Licentiate of the Society
of Apothecaries

LS.A. means Licentiate of the Society of Apothecaries
Ls.d. means pounds, shillings, and pence, from the Latin librae, solidi, denarii, 5008
Lübeck. Important German Baltic port, formerly head of the Hanseatic League. Its cathedral has a tower nearly 400 feet high. 120,000: see page 4295
Lublin. Polish cathedral city, making beet-sugar. tobacco, candles, and soap. 70,000

70.000

Lublin. Polish cathedral city, making beet-sugar. tobacco, candles, and soap. 70,000

Lucas, John Seymour, English historical painter; born London 1849; died 1922; see page 2544

Charles II visiting Wren, 4103

Louis XI in peasant's home, 3921

The Interval, 3780

Whip for Van Tromp, 2554

Lucea. City of northern Italy, with a great trade in olive oil and silk. Once a powerful republic, it has an 11th-century cathedral, nearly 40 churches, and some fine art collections. 80,000

St. Frediono Church, 5748

Lucerne. Beautiful Swiss town on Lake Lucerne, and a famous tourist centre. It is partly surrounded by medieval towers, and near by are Mounts Rigi and Pilatus. 45,000 general view, 4667

Lucerne, Lake of. One of the most beautiful Swiss lakes, covering 44 square miles. It is dominated by the mountain peaks of Rigi and Pilatus, famous for the splendid views from their summits, and at its west end stands Lucerne; 4666

known also as Lake of the Four Cantons, 4670

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Lucy, Sir Thomas, punished Shakespeare for poaching, 2629, 4473
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Ludlow. Old market town in Shropshire, on the Teme. There are a splendid
Norman castle and some picturesque
old buildings. (5700)
picture of castle, 1717
Ludwig, king of Bavaria, Wagner's
patron, 150
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Lugano, Lake of. Lake on the border
of Italy and Switzerland, between
Lakes Como and Maggiore. It covers
20 square miles
Lugnaquilla. Highest summit in the

Lugnaquilla. Highest summit in the Irish Wicklow Mountains. 3040 feet Lugo. Picturesque walled cathedral city in north-west Spain. 30,000

Luini, Bernardino, Italian painter of the Lombard school; born Luino on Lake Maggiore about 1475; died about 1535: see page 935

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Luminous paint, what is the secret of it? 3772

Lummer lamp, mercury arc-lamp used in spectroscopic work

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Lund. Ancient university city in southern Sweden, with a fine Roman-esque eathedral. In the Middle Ages it had 200,000 people. 25,000: see 5772 cathedral, 5783

Lundy. Island in the Bristol Channel, about 12 miles from the Devonshire coast. Almost completely surrounded by cliffs, it was a pirate stronghold Lune. River rising in the Pennine Chain and flowing into Morecambe Bay, near Lancaster. 45 miles

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and artist, designer of the Cenotaph
in Whitehall; born London 1869: see
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area 1000 square miles; population
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Luxor. Upper Egyptian winter resort
famous for its remains of ancient
Thebes. Among these are the Luxor
temple and court of Rameses, while
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engaged in the trade. Other important industries are the chemical, engineering and iron foundings. There are fine 13th and 14th-century cathedrals and a famous fair. 565,000 town hall, 6359, 6361 wireless station, 2214, 2220 Place Bellecour, 4179 Lyre, forerunner of violin, 5614 story of its invention, 4964 Wheatstone's enchanted lyre, 1841 Lyre bird, characteristics, 3148 in colour, 3143 Lyrical Ballads, poems by Wordsworth and Coleridge, 2473 Lyrids, meteor shower, 3608 Lys, River, in Flanders, 5646 Lysander, in Shakespeare's Midsummer

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a thousand
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French word for Mr.
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and the city, capital of the Presidency
of the same name, is now the commercial centre of southern India.
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Mafeking. Administrative centre for British Bechuanaland, South Africa. It is famous for its defence by Baden-Payael, in the Bear Way. (2000).

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Magdeburg hemispheres, two hollow brass hemispheres used to illustrate the pressure of the atmosphere Magellan, Ferdinand, Portuguese navigator, the first European to sail on the Pacific; born 1480; killed by natives in the Philippine Islands 1521: see pages 774, 5410 carried back to his ship, dead, 775 discovery of Pacific Ocean, 771 Magellan Strait. Winding passage connecting the Atlantic and the Pacific, first navigated by Magellan in 1520. 365 miles long, it lies between Tierra del Fuego and the mainland of South America, 774, 5211 Magenta, battle of, fought near Milan in 1859 between the Austrians and the allied French and Sardinians. Equal forces of 60,000 men were engaged, but MacMahon compelled the Austrians to fall back with a loss of 10,000 men; see page 4788 Magenta (dye), made by Medlock and Nicholson, 4472 Maggiore, Lake. Large Italian lake, like Como and Garda famous for its beauty. It covers \$2 square miles, its northern end penetrating into Switzerland, where it is known as Lake Locarno Maggot, apple, with pupa and case, 6087

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Maid of Norway, 894, 952
Maidstone, county town and agricultural centre of Kent. on the Medway.
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fine 16th-century buildings. 38,000
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Mail: see Post Office
Mailbag, cost of Britain's, 4626
Mail coach, what the first was like, 4626
Main. Chief German tributary of the

Rhine passing Bamberg, Wurzburg, Frankfurt, and Mainz. 300 miles: see page 2410

page 2410
Maine. North-easternmost American
State; area 33,000 square miles; population 800,000: capital Augusta. Portland and Bangor are the chief towns, and shipbuilding is the principal industry. Abbreviation Me.
State flag in colour, 2410
Main jet, position in carburetter, 4320
Mainz. Or Mayenee, ancient German city at the junction of the Rhine and Main. It has a fine cathedral and a

Main. It has a fine cathedral and a museum of Roman remains. 110,000 architecture of cathedral, 5746 church of St. Stephen, 5991

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Maitland. Coal-mining and agricultural centre in New South Wales,
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Majorea. Largest of the Spanish Balearie Islands; area 1325 square miles;
population 280,000; capital Palma,
It produces much fruit
Majolica ware takes name from it,6737
Makalu, Mount, height. 5620
Malacea. Port of Malaya, on Malacea
Strait. 20,000; see page 3420
Town Hall square, 3134
Malaccan ant, nest, 5965
Malacea Strait. Channel about 500
miles long connecting the Indian
Ocean and South China Sea, and dividing Malay Peninsula from Sumatra
Malachite, mineral, 1301
Maladetta. Highest mountain in the
Pyrences. 11,200 feet
Malaga. Important port in southern
Spain, exporting olive-oil, wine, lead,
fruit, and esparto grass. It has a cathedral and a Moorish castle. 150,000:
see page 5278
architecture of cathedral, 6372
general view, 5285
Mal à propos, French for Unsuitable;
out of place
Malaya. British part of the Malay
peninsula, including Straits Settlements, Federated Malay States, and
four protected States: 3420
tin \*the chief contribution to British
Empire's productions, 1943
Chinese tea-sellers, 3431
Government buildings at Kuala Lumpur, 3434
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Settlements

Malayans. The name given by students of races to the main division of the Oceanic Mongols who inhabit Sumatra, Java, Borneo, Bali, the Philippines, and parts of Madagascar. By this name they are distinguished from the Malays of historical times. Under-sized, round-headed, snall-nosed, thick-lipped and with prominent check-bones, the Malayans are very low in culture, with head-hunting cannibalism rife in Borneo

Malayan tapir, animal, 1771
Malay bear: see Bruang
Malay cobra, snake, 4615
Malay fox bat, 290
Malays. People of the Oceanic Mongols who live in the Malay Peninsula,
Tidor, Ternate, Borneo coastlands, and
parts of the Sula archipelago. They
are more recent than the primitive
Malayans, whom they have dominated,
and in many places supplanted. They
originated from a tribe in Sumatra in
the 13th century, and, becoming Mohammedans, spread their culture and
language throughout the peninsula
and archipelago
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Malcolm, character in Shakespeare's
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Mal de mer, French for Sea-sickness
Maldive Islands. About 170 inhabited
islands in the Indian Ocean, under
Ceylon administration. Copra is exported, and the natives catch bonito
sharks. Population 30,000: see 3420
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Male shield fern, life-story, 833

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Malin Head. Northernmost cape of Ireland, in Co. Donegal

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Malory, Sir Thomas, Welsh author of the Morte D'Arthur, the first great prose romance in English; flourished about 1470; see pages 363, 366, 6941
Malpighi, Marcello, Italian scientist, founder of microscopic anatomy; born near Bologna 1628; died Rome 1694: see pages 1883, 5570, 1885
Malplaquet, battle of, fought in 1709, during the War of the Spanish Succession, between the French under Marshal Villars and the British and Imperial troops under Marlborough and Prince Eugene. After a desperate struggle the allies forced the French to retire, though they lost 20,000 men against 12,000 lost by the French Malt, what it is, 1440
Malta. British Mediterranean island; area (with Gozo and Comino) 120 square miles; population 225,000; capital Valletta (25,000). Settled by the Phoenicians in the 16th century B.C., it wesoccupied in turn by Greeks, Carthaginians, Romans, Goths. Byzantines, Moors, Normans, and Aragonese, and in 1530 became the stronghold of the Knights of St. John. It was captured in 1798 by Napoleon; surrendered to the British in 1800; and was ceded in 1814. Now a self-governing dominion, it is important for its harbour, 3418
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Maltose, what it is, 1678
Malvern. Worcestershire watering-

Malvern. Worcestershire watering place famous for its mineral springs. has a splendid cruciform church, once belonging to an 11th-century priory. 18,000

Malvern Hall, Constable's painting,

Malvern Hills. Range of hills on the Worcestershire and Herefordshire border. 1400 feet Malvolio, character in Shakespeare's Twelfth Night

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Man, Isle of. British island in the Irish Sea; area 227 square miles; population 49,000; capital Douglas. Peopled by Celts, it was a Scandinavian possession up to 1263, after which it passed in turn to Scotland and England; it is at the strength of the second of the s passed in turn to Scotland and England; it is still self-governing, though under the British Parliament. Agriculture and some mining are carried on, but the island is noted chiefly as a rugged and beautiful holiday resort, Douglas being specially popular in this respect. Other towns are Rainsey, Castletown, and Peel, 596, 885

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Lake Managua. 30,000
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yellow-fronted, in colour, 3141
Man and his Negro Servant, fable, with picture, 3865
Man and the Forest, fable, 4115
Man and the Partridge, fable, 3866
Manaos. Brazilian river port near the junction of the Rio Negro with the Amazon, 1000 miles from the Atlantic; It is a finely built town, trading in cocoa, rubber, and nuts. 80,000 general view. 7006
Opera house, 7006
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Manasseh, Israelite tribe, 1244
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Manchester. Commercial capital and centre of the cotton trade of Lancashire, on the Irwell. Covering over 25,000 acres, it is the greatest purely commercial city in England, and is closely surrounded by a network of industrial towns, of which it is practically one with Salford. In addition to its great textile trade, it is important as an engineering and railway centre, while there are many manufactures. The Manchester Ship Canal, navigable or ships of 12,500 tons, connects the city with Eastham on the Mersey, making it a port. It has a cathedral, built in 1421, and a university. 735,000: see pages 337, 4499
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Ship Canal, 4877
street scene, 1833
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Manchester Massacre, or Peterloo
(Aug. 16, 1819), extravagant name for
dispersal by the military of an assembly
of 30,000 in St. Peter's Field, Manchester, in which several were killed
Manchu Dynasty, 22nd and last imperial dynasty of China, began to reign
1644: see page 6512
Manchuria. Important dependency of
China, in the extreme north-east. The
Manchus formerly supplied the ruling
dynasty of China, but their power
declined rapidly during the last century, and the greater part of the popution of Manchuria is now Chinese. The
dependency is rich in minerals and
timber, and much millet, wheat,
barley, and cotton is grown. Mukden.
Harbin, and Kirin are the chief-towns.
Area 360,000 square miles; population
about 20,000,000: see page 6504

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Manchuran crane, 1916, 3873
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on the Irrawaddy. Here is a temple
with several hundred pagodas.

150,000

150,000 Mandamus, Latin for We command; used to indicate an order made by a higher court to a lower Mandarin duck, bird in colour, 32(3 Mandated territory, territory administered by another country under mandate of the League of Nations, 4749, 6482 Mandiagens A Nations

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Mandingans. A Mohammedan people
of the Sudanese Negroes, who live in
West Sudan. An industrious agricultural people, they became a great
empire under Mansa-Musa in the
fourteenth contemple fourteenth century

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Mangrove tree, method of growth, 3056

Manhattan Bridge, New York. The largest suspension bridge in the world, this is carried by four cables over 21 inches in diameter. The main span is 1470 feet long, and the shore spans each 725 feet. Each steel tower weighs 6000 tons, and the double-deck floor has four

tons, and the double-deck floor has four trolley tracks, four railway tracks, a wide roadway and two footpaths

wide roadway and two footpaths picture, 554
Manihot glaziovii, tree, 2568
Manila. Capital of the Philippines, on Luzon island. Founded in 1571 by the Spaniards, it has a 16th-century cathedral, and is partly walled. Exports include henry, copra, sugar, and tobacco. 280,000
Manila hemp, what it is, 2564
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Manila rope, one an inch thick needs
4 ton pull to break it, 429
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prisoner of the Bastille, whose identity
is not settled. He wore a black cloth
mask, and died in 1703
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Manitoba. Canadian prairie province; Mantoba. Canadian prairie province; area 252,000 square miles; population 610,000; capital Winnipeg (180,000). Wheat, oats, barley, and flax are grown, and horses, cattle, and swine reared. Winnipeg is the grain market of the eastern prairie region soil anriched by worms, 6829 soil prepared for cultivation by rodents,

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English divine: born at Totteridge
1808; died 1892; succeeded Cardinal
Vicanna os Borne Catholic arms

1808; died 1892; succeeded Cardinal Wiseman as Roman Catholic archbishop of Westminster portrait by G. F. Watts, 2551 Man of Straw, term applied to a person who, though possessing little or no capital, takes undue financial risks Man-of-war bird: see Frigate-bird Manometer, device for measuring the elastic pressure of gases or vapours Manor, English manor houses and their development, 6236 Mansard, or Mansart, François, French architect, 6370 Mansfield. Nottinghamshire coal-mining centre and industrial town, mak-

architect, 6370
Mansfield. Nottinghamshire coal-mining centre and industrial town, making boots, hosiery, machinery, and textiles. Population 44,000
Mansfield Park, novel by Jane Austen, published in 1814: see page 2350
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born St. Paul, annual page 4896
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Mansoura. Egyptian cotton-growing centre in the Nile delta Mantegna, Andrea, Italian painter, the most famous of the Paduan school; born near Padua 1431; died Mantua 1506: see page 931
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Mantle: see Cerebrum
Mantle, mussel's mantle explained, 1176
Mantua. Fortress of northern Italy, on
two islands formed by the Mincio. The
birthplace of Virgil, it was important
in the Middle Ages; its buildings
include the old ducal palace, the
cathedral, and the beautiful church of
San Andrea, containing the tomb of
Mantegna. Weaving, tanning, and
saltpetre industries are carried on.
35,000

saltpetre 35,000 church of St. Andrea: fine example of Renaissance architecture, 6110 Del Té Palace, 6111

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Manuzio, Aldo, Italian pioneer of
printing; introduced italic type; born
near Velletri about 1450; died Venice of

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Maoris, people of Polynesian stock in New Zealand. They have oval faces and Caucasic blood. Tall, muscular, olive-brown, and with straight or wavy hair, they went to New Zealand from Rarotonga in 1350. Formerly cannibals they today show progress in culture and civilisation: 770, 1142, 1948, 2696

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and terrorist; born Boudry, Switzerland, 1744; assassinated by Charlotte
Corday, at Paris, 1793: see pages 654,
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Marathon, battle of, victory in 490 B.C.,
of 10,000 Athenians and Plataeans
over a Persian army six times more
rumerous. It prevented Darius from
extending his empire over Europe,
and gave heart to the Greeks in their
conflict with the Persians ten years
later. The battle was fought about
22 miles from Athens. Miltiades the
Athenian general won by tactical
strengthening of his wings. The Persians lost 6000 and the Greeks only 192
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Margaret, queen of Navarre, sister of
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it flows past Chalons and Epernay in Champagne to join the main stream at Charenton. On the Marne the German invasion of France was checked in 1914. 320 miles: 1708
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Marsyas, mythological satyr, sometimes Phrygian peasant, 3530
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form. They were erected in large numbers along the south coast of Eng-land as part of the coast defences against Napoleon's threatened invasion, and many of them remain

against Napoleon's threatened invasion, and many of them remain Marten, mammal, 792 species of marten, 789-90 Martha and Mary, Bible story, 4214 Martial, Roman epigrammatical poet; born Bilbilis, Spain, A.D. 43; died Spain about 104: see page 5432 Martial hawk eagle, bird, 3636 Martin, 8t., Roman soldier who, after giving half his cloak to a beggar, had a vision of Our Lord, and was baptised in 356. He afterwards became Bishop of Tours, and is said to have made many converts and worked miracles. His tomb is still visited by pilgrims Martin, David, Raeburn's friend, 5694 Martin, Homer Dodge, American landscape painter; born Albany, New York, 1836; died St. Paul, Minnesota, 1897; see page 3287 his paintings, Harp of the Winds, 3285 Sand Dunes, 3290 Martin, bird, characteristics, 3145 house martin, in colour, 3024 routes of migrations, 223 sand martin, in colour, 2897, 3139 Martineau, Dr. James, British theologian and philosopher; born Norwich 1805; died London 1900; prominent Unitarian on God's presence about us, 3099

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Martinique. French West Indian island
exporting cocoa, sugar, and rum. Discovered by the Spaniards in 1493, and
settled by the French in 1635, its
prosperity suffered greatly through the
eruption of the Mont Pelée volcano in
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1902. Area 380 square miles; population 175,000
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Mary II, queen of England, daughter of James II; born in London 1662: died 1694; married William Prince of Orange: 1214
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by her, 6421
Mary, queen of England, consort of George V; born Kensington Palace 1867; standard of, in colour, 2405
Mary, queen of Scofs, daughter of James V; born Linlithgow 1542; beheaded at Fotheringhay 1587; see page 1082
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who have been saved from destruction
at the hands of the Matabele. They
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Mask, Lough. Lake in Connaught,
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four miles broad
Maskelwaye Nevil English astronomer.

Maskelyne, Nevil, English astronomer; born London 1732; died Greenwich 1811: fourth astronomer royal: 3614 British Nautical Almanac started, 3279

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STRENGTH OF MATERIALS

Here is the tensile strength, or resistance reckoned in pounds per square inch which various materials offer to separation. It will be seen that their strength varies enormously

Cast Aluminium .. .. .. 15,000 Cast Brass . . . . . . . . . . 18,000
Brass Wire . . . . . . . . . . . . . 49,000 .. 18,000 Bronze 36,000
Cast Copper 19,000
Copper Wire 60,000
Wrought Iron 50,000
Sheet Lead 3300
Steel 45,000 to 120,000 45,000 to 120,000 .... 2,896,000 Steel Steel ..... 45,000 t Bessemer Steel Wire .... | Ressemer Steel Wire | Cast Tin | Zine | 7000 | Srick | 280 | Cement | 280 | Glass | Slate | 2400 | Mortar | 2400 | Mortar | 2400 | Cast Tin | 2400 | Mortar | 2400 | Cast Tin | 2400 | Mortar | 2400 | Cast Tin 4600 .. 7000 to 8000 300 300 280 to 2560 to 4600 10 to 20 Materia medica, Latin for that branch

of medical science which relates to medicines

medicines
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Mathematics, the science of numbers
and their relations to one another
ancient Egyptians must have used
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Matilda, queen of England,, wife of William the Conqueror; died in Normandy 1083 abbey at Caen founded by her, 5746 Bayeux Tapestry said to have been her work, 6739 Matilda, or Maud, queen of England, daughter of Henry I; born 1102; died 1167; married Emperor Henry V fight for crown against Stephen, 718 Matisse, modern French painter, 3044 Matlock. Derbyshire town with paper, cotton, and bleaching industries. Near by is Matlock Bath, famous for its mineral springs. (7000) Mat-making, in Madagascar, 6748 Matoppo Hills, Rhodesia, grave of Cecil Rhodes, 3195 Matrix, or mould, paper matrix explained, 6960, 6965 Matronalia, Roman festival in honour of Juno, 3514 Matsys, Quentin, Flemish painter; born Louvain about 1466; died Antwerp 1530: see page 1057 portrait of Bishop Gardiner, 1053 Virgin and Child, 1053 Mattathias, Jewish priest and patriot, father of the Maccabees; died 167 B.C.: see page 880 Matter, chemical compounds, 4345

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is Mind, 1616
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Maud, or Matilda (1080-1118), queen of England, wife of Henry I, 718

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Mauna Loa (Great Mountain). Hawaiian volcano on the slopes of which is the Kilauca crater. 13,650 feet Maunch, heraldic charge, 926 Mauretania, liner, ring of turbinedrum, 3211 tugged into harbour, 3573 Mauritius. British island in the Indian Ocean; area 720 square miles; population 380,000; capital Port Louis (40,000). Discovered by Portuguese in 1505; occupied by Dutch in 1598 and named after Prince Maurice of Orange-Nassau; occupied by French, who called it lie de France, 1710-1810. French is still generally spoken. Copra, coconuts, vanilla, molasses, and especially sugar are exported: 3418, 3420 arms in colour, 2407 French troops marching out, 1953 Port Louis, street scene, 3436

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Maximin II, or Maximinus, Galerius
Valerius, Roman emperor and general;
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Maximinus Thrax, Roman emperor
(235-238); Maximinus I, or Maximin,
Gaius Julius Verus, called Thrax (the
Thracian): portrait, 2879
Maximum thermometer, one that registers by a small indicator the highest
temperature recorded

temperature recorded

Maximus, Prince, story and picture, 1887

1887
Maxwell, James Clerk, Scottish mathematician and electrician; born Edinburgh 1831; died Cambridge 1879; founder of the theory of wireless telegraphy: 2092, 3360 physical researches, 6316 radiation pressure discovered, 5816 enters Edinburgh Academy, 6317 in laboratory, 3361

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Mayas, Indians of Central America.
Short, thick-set, roundish-headed, and
pale to dark bronze in colour, the Mayas are today mostly agricultural peasants.

They are descended from the highly cultured people conquered by the Spaniards, and remains of a splendid architecture, sculpture, and picture writing are to be found. They excelled in mathematics, and had a knowledge of astronomy: 6994 god and high priest, 6991 sculpture from Guatemala, 6989 temple in Yucatan, 6990 Mayence: see Mainz Maydower, ship of the Pilgrim Fathers, 1206, 3674, 4006 Pilgrim Fathers in cabin, 3676 sailing from Plymouth, 3675 signing of covenant, sculpture, 5543 May-fly, life story, 5715 common, insect, in colour, 5713 Mayhew, Thomas, 18th-century English cabinet-maker: fine style of furniture developed by him, 6737 Maynard, John, Pilot, story of, 6694 Maynooth. Village in Co. Kildare, Ireland, famous for its college for Roman Catholic priests Mayo. Rugged western county of Ireland; area 2158 square miles; population 190,000; capital Castlebar Mayor, who he is, and his work, 4409 Mayweed, flower, 4413 Mazarin, Cardinal Jules, French statesman, the successor of Richelieu; born Piscinae, Italy, 1602; died Vincennes 1661: see page 3922 building of Louvre carried on, 6370 tomb by Coysevox, in the Louvre, 4645 Death of Mazarin, by Delaroche, 1807 portrait, 3917 Mazeppa, ride on wild horse, 5415 Mazerolle, J., Christians meeting in Rome, painting, 1905 Mazzini, Guiseppe, Italian patriot and author; founder of the Society of Young Italy; born Genoa 1805; died Pisa 1872: see pages 896, 4583, 4788 in prison, 4787 portraits, 889, 4133 M.B. means Bachelor of Medicine

Pisa 1872: see pages 896, 4583, 4788 in prison, 4787 portraits, 889, 4133 M.B. means Bachelor of Medicine (Latin Medicinae Baccalaureus) M.C. means Master of Ceremonies M.C.C. means Master of Ceremonies M.D. means Doctor of Medicine (Latin Medicinae Doctor) Malla or Wille study for the French

Mille. or Mile. stands for the French for Miss, being a contraction of Mademoiselle Mdm. or Mme. stands for Madam

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65,000: capital Trim
Meaux. Old French city on the Marne,
25 miles north-east of Paris, with a
splendid Gothic cathedral. It has
manufactures of steel and textiles and
a large agricultural trade. 15,000
Mecca. Moslem holy city, capital of the
Hejaz, Arabia. The birthplace of
Mohammed, it contains the mosque in
which is the sacred Ka'aba, visited
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there is a medieval town hall and cloth hall. The railway shops are important. 60,000: see page 5526 cathedral of St. Rambaut, 5652 cathedral otwer, 5660 Medal, object in metal with sculpture in relief, cast to commemorate great events and people 17th-century silver one, 70 portrait of John Thurloe, 71 specimen from Syracuse, 71 Medea. in Greek mythology. Jason's

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Mekong, Great Asiatic river, though generally too rapid for navigation.
Rising in Tibet, it flows past Saigon, Cochin China, into the China Sea. 2800
miles

Melanesia. Western groups of the Pacific Islands, including New Cale-donia, Fiji, the New Hebrides. and the Solomon Islands. They are peopled by the Melanesian or dark Oceanic race

the Melanesian or dark Oceanic race Melanesians, dominant race in the group of Pacific islands east of New Guinea. Of Australoid origin they were formed by the intermingling of an aboriginal black, woolly-haired people with an Indonesian and Malayan immigrant people. Blood-thirsty and cannibalistic, they have a higher sense of social life than the Papuans, and have a religious sense acquired from the Polynesians who live around them

and have a religious sense acquired from the Polynesians who live around them Melbourne. Capital of Victoria, Australia, and, until the completion of Canberra, of the Commonwealth. Standing on the Yarra, it has some of the finest public buildings in the world, including two cathedrals; railway communications extend to all the other State capitals on the mainland. The fine harbour of Port Phillip is the chief outlet of the produce of Victoria, and the manufactures are varied and important. \$20,000: see page 6474

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dividing Anglesey from Carnarvonshire.
14 miles long and from a few hundred yards to two miles broad, it is crossed by the Menai Suspension Bridge, opened in 1826, and by a tubular bridge completed by Stephenson in 1850

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Menai Suspension Bridge, Wales, finished
by Telford in 1826, and a masterly piece
of engineering. Its total length is 1000
feet, though the iron suspension chains
are 1715 feet long; the main span is
550 feet long and 100 feet above high
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# MEDALS OF THE BRITISH FORCES

From Waterloo Till Now



CABUL---1842

TWO MEDALS ISSUED FOR THE DEFENCE OF JELLALABAD—1842
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# Children's Encyclopedia

# Gallery of Medals











CANADA-1866-1870

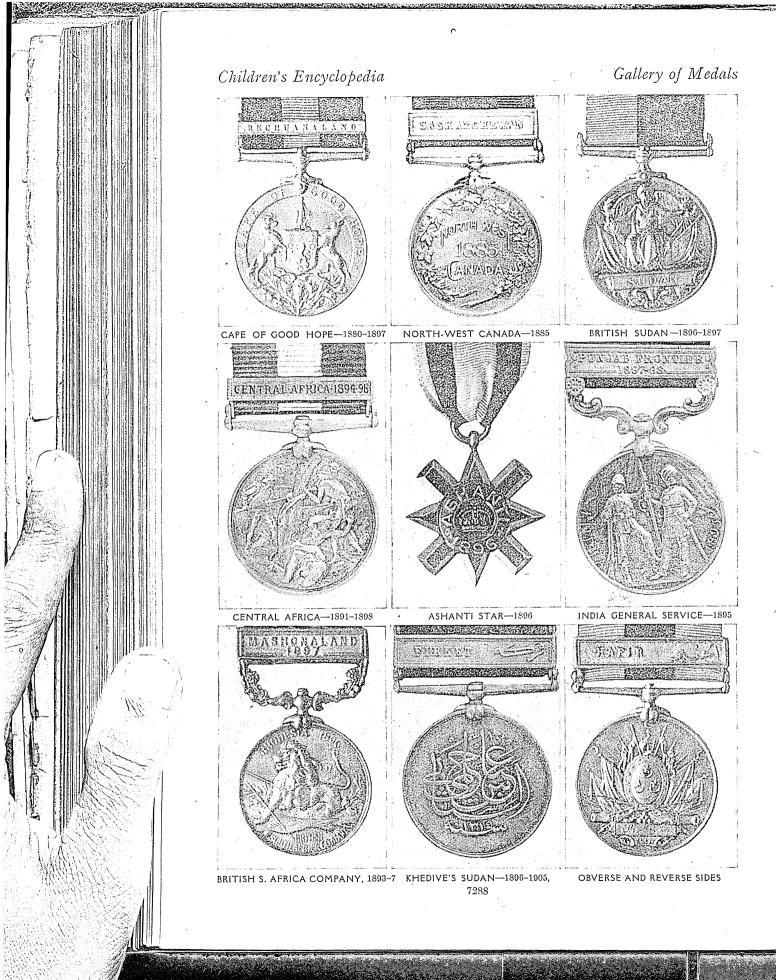




AFGHANISTAN-1878-1880

KHEDIVE'S STAR-1882-1890

EGYPT AND SUDAN-1882-1889



# Children's Encyclopedia

## Gallery of Medals







AFRICA GENERAL SERVICE

SOUTH AFRICA (QUEEN'S) 1899-1902 SOUTH AFRICA (KING'S) 1901-1902







EDWARD VII. INDIA GENERAL SERVICE

ASHANTI-1900

TIBET 1903-1904







NATAL-1906

NORTH-WEST FRONTIER-1908

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SUDAN-1910

# Children's Encyclopedia AIR FORCE CROSS MONS STAR VICTORY MEDAL AIR FORCE MEDAL

MILITARY MEDAL

Gallery of Medals

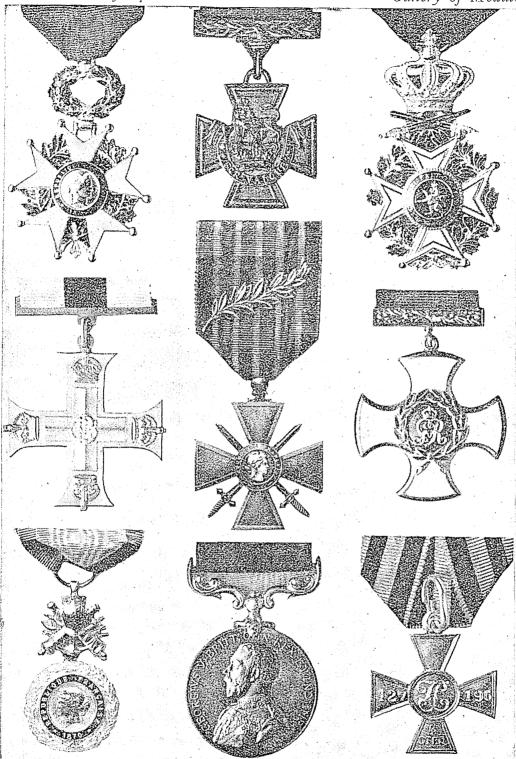


DISTINGUISHED FLYING CROSS



DISTINGUISHED FLYING MEDAL GREAT WAR MEDAL, 1914-1918 7290





BADGES OF CHIVALRY IN THE ALLIED ARMIES OF THE GREAT WAR

Reading across the page from left to right and top to bottom the first decoration is the French Legion of Honour; (second) the British Victoria Cross; (third) the Belgian Order of Leopold; (fourth) the British Military Cross; (fifth) the French War Cross; (sixth) the British D.S.O. (Distinguished Service Order) for officers; (seventh) French Military Medal for "Valour and Discipline"; (eighth) the British D.C.M. (Distinguished Conduct Medal) for rank and file; (last) the cross of St. George of Russia

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miles from the port of Progreso.
Founded in 1542, it has a 16th-century cathedral, while near by are remarkable

cathedral, while near by are remarkable ruins of the Maya civilisation. 70,000 Merida. Spanish city in Estremadura, famous for its Roman remains, includ-

famous for its Roman remains, including a bridge of Trajan 2575 feet long.
15,000
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Cheshire on which stand Liverpool
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Warrington, Widnes, Runeorn, Wallasey, Bootle, and New Brighton. Flowing from the Peak of Derbyshire into the Irish Sea, it is joined at Eastham in Cheshire by the Manchester Ship Canal, and next to the Thames forms the most important English waterway. The Weaver is its chief tributary. The Weav

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Meredith, George, English novelist and poet; born Portsmouth 1828; died and cotton, and the area under crops is Box Hill, Dorking, 1909: see pages 3584, 4081, 3579 increased by irrigation. Here are the sites of Nineven and Babylon, and Chaldean, Babylonian, and Assyrian antiquities. The people are mainly Moslem Arabs, and the chief towns are Mosul and the port of Basra:

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Meunier, Constantin, Belgian sculptor;

Meum et tuum, Latin for aline and thine
Meunier, Constantin, Belgian sculptor; born Etterbeek, Brussels, 1831; died Brussels 1905: see page 4896
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Meuse, River of France, Belgium, and Holland draining nearly 13,000 square miles. It rises in the Langres plateau and passes Verdum, Sedan, Dinant, Namur and Liege, joining the Rhine at Gorcum: 500 miles, 5646
at Namur, 5651
French scene, 2498
Mexican barn owl, bird, 3501
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Mexico. Southern republic of North America; area 770,000 square miles; population 151,000,000; capital Mexico City (1,100,000). The climate and vegetation vary widely, the low-lying coastal regions being tropical and unhealthy, while the central plateau is generally dry and pleasant. The mineral and agricultural resources are very great, silver-mining especially, having been important since the 16th century; while of late years there has been an immense production of petroleum. Iron, copper, lead, zinc, sulphur, quicksilver, platinum, and salt are found, and vegetable products include medicinal plants, indiarubber, dyewoods, fruit, sisal, sugar, coffee, cocoa, rice, indigo, cotton, maize, and tobacco. Guadalaiara Puebla, San Luis Potosi, and Monterey are important towns; Vera Cruz and Tampico are ports. Once the seat of the Tolte and Aztec civilisations, Mexico was conquered by (Center, in 1510, venericale succession). vera Cruzana Tampico are ports. Once the seat of the Toltee and Aztec civilis-ations, Mexico was conquered by Cortes in 1519, remaining Spanish up to 1821: see page 6994, 7003 oil production (1922), 2963 who built the pyramids of Mexico?

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Mexico City, Capital of Mexico, founded
by Cortes in 1522 on the site of the
Aztec capital, Tenochtitlan. In a
beautiful valley of a lofty plateau, it
has a fine climate and many notable
buildings, including the 16th-century

# THE METERS THAT MEASURE THINGS FOR US



ANEMOMETER An instrument for measuring the force or ve-locity of the wind

ATMOMETER
An apparatus for measuring the rate of evaporation from a wet surface

BAROMETER CHRONOMETER
An appliance for measuring the pressure of measuring time; a timethe atmosphere keeper

CRANIOMETER An apparatus for the scientific measurement of skulls



DECLINOMETER
An instrument for measuring the declination uring the declination of the magnetic needle



ELECTROMETER
An instrument for measuring the power of work
of an electric charge





GALVANOMETER
An apparatus for measuring current strength for holding gas, incoiin electricity rectly named



GEOMETER One skilled in geometry, which is really measur-ing the Earth



HYDROMETER instrument for An instrument for An appliance for measuring the specific measuring the moisture gravity of substances in the atmosphere



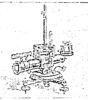
Αn



HYPSOMETER
For measuring heights
by studying air pressure
and boiling point



LACTOMETER
An apparatus used for measuring the density of milk



An instrument for the measurement of magnetic force

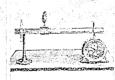


MICROMETER
An appliance for the An instrument used by measurement of very some surveyors for small angles or spaces measuring distances





PEDOMETER
A device for measuring
the distance travelled
by a pedestrian





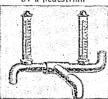
PHOTOMETER PLANIMETER
An instrument for An apparatus for measmeasuring the intensity uring the area of a surface, however irregular



PLUVIOMETER



PULSOMETER An instrument for col- A special kind of pump lecting and measuring in which steam goes althe amount of rainfall ternately into two va'ves



PYROMETER An instrument for measuring very high degrees of heat



RADIOMETER An apparatus for trans-forming radiant energy into mechani al wark.



CCHAROMETER instrument Än measure the amount of



SEISMOME FER
An apparatus for measuring the intensity of earthquakes



SPEEDOMETER
An appliance for measuring the speed at which motors are travelling



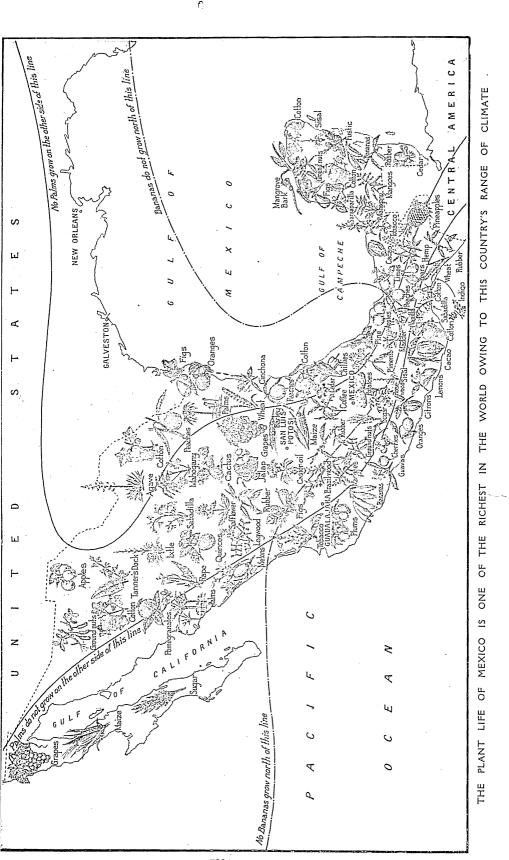
SPHEROMETER device for measuring the curvature of spher-ical surfaces



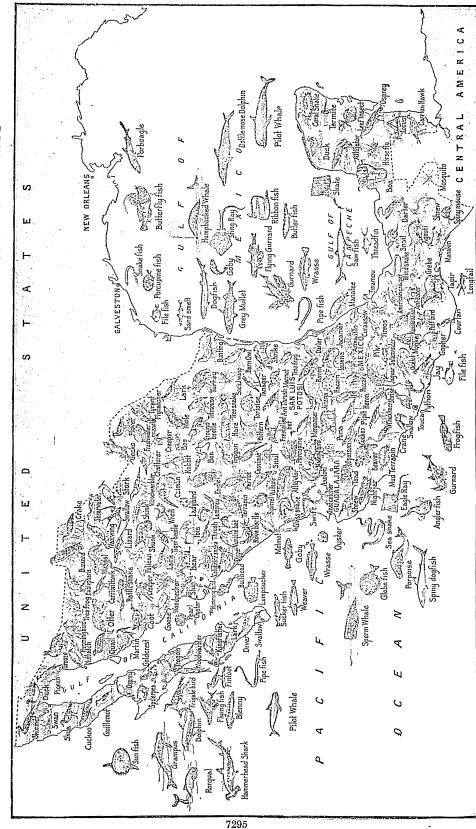
THERMOMETER
A very familiar appli- A rance for measuring the for temperature



UDOMETER A rain gauge or device for measuring the r measuring the amount of rainfall



# ANIMAL LIFE OF MEXICO AND ITS TWO OCEANS



MEXICO. WASHED BY BOTH ATLANTIC AND PACIFIC. POSSESSES ABUNDANT MARINE LIFE, AND ITS LAND CREATURES HAVE AN ALMOST EQUAL VARIETY

cathedral. Textiles and cigarettes are manufactured, and the principal port is Vera Cruz. 1,100,000: see pages 6996, 7030

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m.g. stands for milligramme, '015

m.g. stands for milligramme, '015 grain

grain
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French monseigneur (my lord)
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painter, and architect, greatest sculptor
of the Renaissance; born Caprese,
Tuscany, 1475; died Rome 1564;
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botanist, 3412
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sculptor and architect, pupil and helper
of Donatello; born Florence 1396;
died 1472: see pages 4523, 4729
designed Riccardi Palace, Florence,6108
Michigan. American State bordering the Great Lakes; area 58,000
souare miles; population 3,700,000;
capital Detreit (1,000,000). Iron and
copper are its chief products; agriculture, lumbering, and grazing are
important. Abbreviation Mich.
State flag in colour, 2410
Michigan, Lake. One of the Great
Lakes of North America, the only one
lying entirely within the United States.

320 miles long and 65 miles broad, it Midnight Horse, story, 1766 covers 22,400 square miles its northern half being covered with ice in winter. Fiord, 2743

covers 22,400 square miles. Its northern half being covered with ice in winter. A huge shipping trade is done in summer by the cities of Chicago and Milwaukee.on its western shore Micinski, Polish hero, 6132 Mickiewicz, Adam, Polish poet; born Novogrodek, Lithuania, 1798; died Constantinople 1855; see 4486, 6135

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diaphragms
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small angles or spaces

small angles or spaces
Micron, definition of: see Weights and
Measures, units of measurement
Micronesia, Vast number of small'
coral islands in the north-west Pacific,
including the Pelew, Marshall, Marianne, Gilbert, and Caroline groups
Microphone, Hughes's invention for
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Museum, 429
Milan. Third city of Italy, in the centre
of the Lombard plain. Owing to its
position Milan has had an important
trade throughout its history, and it is
now a large railway centre; it manufactures silk. velvet, machinery, and
metal wares. The cathedral, begun in
the 14th century, is one of the most
magnificent in Europe, and is built
entirely of marble. The exterior is
adorned with pinnacles and 6000
statues in niches. The Brera Palace
contains a splendid art collection.
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writer, one of the great figures of the
Puritan Revolution; born London
1608; died there 1674; author of
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measure, liquid
Minimum thermometer, one that
registers by a small indicator the lowest

temperature recorded Minimum wage, general term for the lowest wage payable by law to workers in particular industries. In the United

in particular industries. In the United Kingdom minimum rates for certain industries were enforced by means of the Trade Boards Act of 1900 Minivet, bird, in colour, 2261 Mink, animal, home, 793 Minneapolis. Largest city of Minnesota, U.S.A., on the Mississippi. The most important flour-milling centre in the world, it trades also in grain and lumber. 380,000 Minnesota. American north-central State containing the sources of the

ber. 380,000 Minnesota. American north-central State containing the sources of the Mississippi; area 85,000 square miles; capital Minneapolis (380,000). It is a great grain-producing State, St. Paul (240,000) on the Mississippi and Duluth on Lake Superior being both great shipping centres. Abbreviation Minn. State flag, in colour, 2410 Minnow, food and habits, 4979 in colour, facing 5196 Minobu Temple, Japan, 5082 Minorca. Second largest of the Spanish Balearic Islands, area 290 square miles; population 40,000; capital Port Mahon. The British held it 1708-56 and 1762-82 Minos, king of Crete, 6805

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mishna, part of the Jewish Talmud
embodying the oral law
miskolez. Agricultural centre in northeast Hungary. 50,000
mispickel, arsenical iron pyrites, 1303
missel thrush, bird in colour, 2766
missionaries, men of peace whose
victories were as great as those of men
of war, 1137

victories were as great as those of men of war, 1137
Mississippi. Fertile American southern State, producing much cotton, fruit, and grain; area 47,000 square miles; population 1,800,000; capital Jackson. Abbreviation Miss. State flag in colour, 2410
Mississippi River. Longest river and most important commercially in the world. Entirely American, it rises at a height of 1680 feet in Minnesota, and is navigable almost throughout its course, being a mile wide after its junction world. Entirely American, it rises at a height of 1680 feet in Minnesota, and is navigable almost throughout its course, being a mile wide after its junction with the Missouri. With the Des Moines, Illinois, Missouri, Ohio, Arkansas, and Red Rivers, it drains 1,250,000 square miles, and it passes Minneapolis, Quincy, St. Louis, Cairo, Memphis, and New Orleans. 4200 miles: see page 2493 mud carried down by it, 642 delta, diagram, 2493 motor barges on, 2498 scene, 3806 map showing course, 3687 Mississippi Scheme (1716 to 1720), financial scheme proposed by John Law, which included sole trading rights on the banks of the Missispip. Its object was to restore French credit, but it almost brought France to ruin Missouri. Rich American central State; area 69,000; capital St. Louis (800,000). Coalfields cover 20,000 square miles, while great quantities of grain and fruit are produced and cattle-rearing is important. Abbreviation 160. State flag in colour, 2410
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Modus vivendi, Latin for A settlement or compromise between opposite parties in a dispute; literally: A way of

in a dispute; literally: A way or living Moeris, Lake, great Egyptian irrigation lake of ancient times, 6850, 6857 Moffat, Robert, Scottish African missionary; born Ormiston, East Lothian, 1795; died Leigh, Lancashire, 1883: see pages 1140, 3002 finds trail of slave hunters, 3005 portraits, 1137, 2997 M.O.H. stands for Medical Officer of Health

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Mohammed II, Turkish sultan who conquered Constantinople; born about 1430; reigned 1451-1481: see pages 687, 5026

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there 1907; inventor of the electric
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von, Prussian general: born Parchim,
Mccklenburg-Schwerin, 1800; died
Berlin 1891; strategist of the wars of
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Moluceas. East Indian archipelago
including Amboyna and Ternate
islands. Occupied by the Dutch in
1613, they have ever since been a
great centre of the clove and nutmeg
trade. Area 20,000 square miles;
population 450,000
possession disputed between Spain and
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Mongolian wild horse, picture, 1897
Mongolic races. One of the main divisions of mankind. They are mostly
found in Asia, and the Manchus are a
typical race. The Mongolic type is
characterised by a yellowish skin,
broad, flat features with prominent
cheek-bones, broad skulls, almondshaped eyes, and black, lank, and coarse
hair. They are subdivided into Northern, Southern, and Oceanic Mongols,
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Monrovia. Ionrovia. Liberian capital and port, exporting nuts and dye woods. (6000) exporting nuts and dye woods. (6000)

Mons. Belgian manufacturing and coalmining centre, famous for its lovely
Gothic church of St. Waudru. 30,000

Mons, hattle of, British Army's stand
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Montaigne, Périgord, 1533; died Paris
1592: see pages 2969, 4455, 4453
Montana. Large American northwestern State; area 146,000 square
miles; population 550,000; capital
Helena. Containing much of the Rocky
Mountain system and part of the Bad Helena. Containing much of the Rocky Mountain system and part of the Bad Lands, it is generally too dry for cultivation, but stock-raising and mining are carried on. Abbreviation Mont. State's flag in colour, 2411

Montauban. French eathedral city on the Tarn, famous as a Huguenot strong-hold in the 16th and 17th centuries. Half its people are still Protestants. \_\_30,000

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Mont Cenis Pass. Highway between
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Pennine Alps. 15,200 feet Montesquieu, Baron Charles de, French

ritical writer; born near Bordeaux 1689; died Paris, 1755 Monte Video. Capital and port of Uruguay, on the La Plata, opposite Buenos Aires. One of the best built cities in America, it has a cathedral and

many fine buildings; many fine buildings; a great com-mercial centre, it trades largely in beef and hides. 400,000: see page 7012

and hides. 400,000: see page 7012 views, 7011 Monte Viso. Highest mountain in the Cottian Alps. 12,600 feet Montfort, Simon de: see De Montfort Montgolfier, Jacques Etienne, French inventor; born near Lyons 1745; died Servieres 1799; inventor with his brother Joseph Montgolfier of first balloon, 19, 4445 Montgomery. James, imprisoned for

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county; area 800 square miles; population 51,000; capital Montgomery; other towns are Welshpool, Newtown, and Llanidloes

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Montpellier. Centre of the wine trade
of Languedoc, France, with a cathedral
and two noble terraces. Petrarch and Rabelais studied at its ancient university. 80.000

sity. 80,000

Mont Pelvoux. One of the most inaccessible of the Alps, in Dauphiny, France. 12,950 feet: 2246

Montreal, Commercial capital and largest port of Canada, in Quebec. With monty willow of decks and cause on the largest port of Canada, in Quebec. With many miles of docks and quays on the St. Lawrence, it is the chief port for the produce of the West, and the greatest shipping, banking, and railway centre in the Dominion. The chief buildings are the McGill and Laval universities and the Anglican and Roman Catholic cathedrals. Half the population is of French descent. 650,000 650,000

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miles; population 12,000; capital
Plymouth (1700). Fertile and beautiful,
it exports cotton and limes

miles; population 12,000; capital Plymouth (1700). Fertile and beautiful, it exports cotton and limes
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One of the most populous districts of Central Europe, it has important agricultural, mining, and textile industries, Brünn and Olmütz being the chief manufacturing towns, 4552
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Morecambe. Popular watering-place
in Lancashire, on Morecambe Bay.
Near by is Heysham, with steamship
services to Ireland. 20,000
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Moscow. Capital of Russia, on the Moskva tributary of the Volga. Its chief feature is the huge Kremlin, or citadel, which contains the Great Palace, bell tower of Ivan Veliky, and Uspenski cathedral; there are three other cathedrals, and with its towers and gilded cupolas the city is almost oriental in appearance. It is the railway, commercial, and manufacturing centre of Russia. 1,200,000: see page 6019
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Morning Star of the Reformation, name given to John Wyeliffe
Morocco. North African sultanate; area about 240,000 square miles; population about 6,000,000; capitals Morocco, or Marrakesh, and Fez. Rapidly growing in prosperity, the French protectorate produces barley, oranges, figs, lemons, dates, and antimony are mined. Casablanca, Rabat, and Mogador are the chief ports. Spanish Morocco is a zone of about 11,000 square miles, with about 500,000 people, containing Tetuan, the capital, Melilla, and the wild Rif country; Tangier is an international port. Morocco was independent up to 1912: see page 6749
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W.P.A. S. stands for Member of the

Philological, or of the Pharmaceutical Society
M.R.A.S. stands for Member of the Royal Academy of Science, or of the Royal Asatic Society
M.R.C.C. stands for Member of the Royal College of Chemistry
M.R.C.O. stands for Member of the Royal College of Organists
M.R.C.S. stands for Member of the Royal College of Surgeons
M.R.C.V.S. stands for Member of the Royal College of Surgeons
M.R.C.V.S. stands for Member of the Royal College of Veterinary Surgeons
M.R.I. stands for Member of the Royal Institution

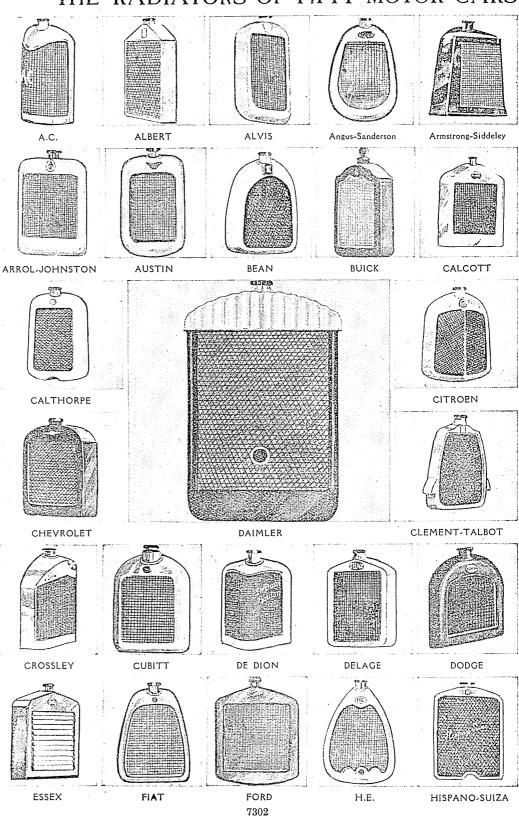
Institution

Institution
M.R.I.A. stands for Member of the Royal Irish Academy.
Mrs. Grundy, name taken from a phrase in Thomas Morton's play Speed the Plough (1798). What will Mrs. Grundy say? is the question asked, and Mrs. Grundy has come to typify over-strict conventionality of behaviour
MS. stands for manuscript; the plural is MSS.
m.s.l. stands for Mean socious!

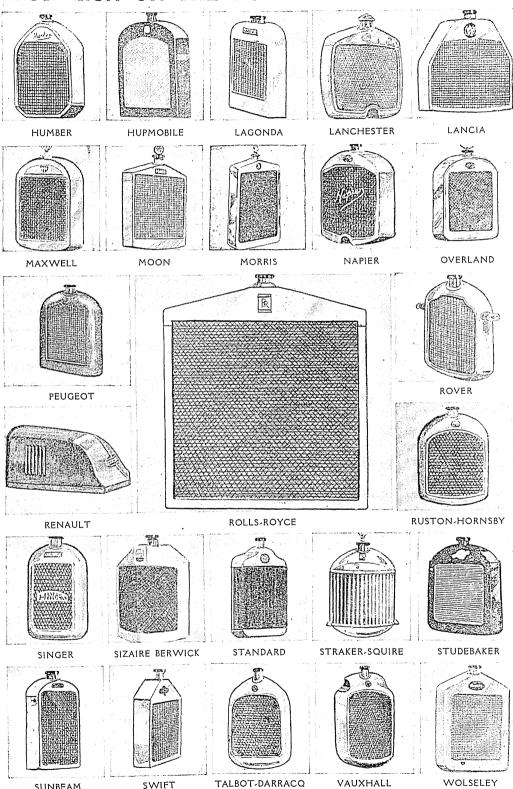
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# THE RADIATORS OF FIFTY MOTOR CARS



# THAT RUN ON THE ROADS OF BRITAIN



7303

**SWIFT** 

SUNBEAM

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handsome place, it is noted for its
university, its splendid art collections,
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There are large brewing, foundry,
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Nagyus, Sik and obtain Handracturing city in Honshu, Japan. 620,000
Nagpur. City of central India, trading in cotton. 100,000
Nahuatlans. One of the two groups of races of the American Indians who inhabit Mexico and Central America. inhabit Mexico and Central America. The Pipils of Guatemala and the Aztees on Lake Nicaragua are the two chief representatives of the group. The Aztees borrowed much of the Maya civilisation, and their Calendar stone is now to be seen in the cathedral of Mexico City, Originally they were most cruel and blood-thirsty

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industries. (9000)
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20,000

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Naples. Largest city of Italy, and one of the most beautifully situated in Europe. Founded by the Greeks as Neapolis, Naples generally is crowded, dirty, and picturesque, though of late years much has been done to modernise it. There is a busy export trade, while fishing and the manufacture of textiles, pottery, gloves, soap, and perfumery are carried on. The cathedral of St. Januarius dates from the 13th century, and the National Museum is rich in archaeological treasures from Pompeii. 780,000: see page 4918 catacombs at Naples, 444 sculpture in museum, 4140, 4396 general view, 4920 street scene, 4918
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Narbada. Swift river of the Indian Deccan, rising in the Satpura Mountains and flowing into the Arabian Sea. 800 miles

Narbonne. Earliest Roman colony beyond the Alps, having been founded as Narbo in 118 B.C. It stands on the Canal du Midi in Languedoc, France, and is famous for its honey, its uncom-pleted 13th-century cathedral, and ancient remains. 30,000 Narcissus (myth), story of Echo and, 3530, 6823 painting by J. W. Waterhouse, 3522 sculpture found at Pompeii, 4897 Narcissus, flower, 6378 Narbonne. Earliest Roman colony

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Narva. Esthonian manufacturing town, on the Narova. 35,000: see page 6022
Narva, battle of. Fought between Charles XII of Sweden and the Russians, who were besieging this Baltic port (1700). Charles won a big victory, Peter the Great fleeing to Novgorod
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Narwhal, sea animal, 2149, 2151 tusk which Frobisher gave to Queen Elizabeth, 5206 Nasal bot-fly, insect, 6082 Naseby, battle of. A decisive victory in 1645 of Cromwell and the Parliamen-tarians over Charles I and the Royalists. Prince Rupert put to flight the opposing cavalry, but returned to find that Cromwell and his Ironsides had overwhelmed the infantry, and that Charles had fled to Leicester, having lost 6000 men and his private papers: 522 Cromwell on field, 4005

Nash, John, architect in London, 6472 Nash, Thomas, English poet and writer of plays; born Lowestoft 1567; died in 1601

Nashville. Capital of Tennessee, U.S.A. An important educational centre, it has four universities and a busy trade. 125.000

Nasmyth, James, Scottish engineer; inventor of the steam-hammer; born Edinburgh 1808; died London 1890:

Edinburgh 1808; died London 1890: see page 5946 portraits, 1827, 4131 sketching the Rocket, 5941 Nasmyth hammer, steel ingot under, 57 Nassau. Capital of the British Bahama Islands, on New Providence Island.

15,000
government buildings, 3434
Natal. South African eastern province, including Zululand; area 35,000 square miles; population 1,450,000 (149,000 whites); capital Pietermaritzburg (30,000). The soil is very fertile, sugar and other tropical produce being grown near the coast, and fruit and cereals on the uplands. Sheep and cattle are reared, and coal is mined. Durban (146,000) is the largest port on the east coast of Africa: see page 3187
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Naumburg. Ancient central German city with a splendid Gothic cathedral Nauru. Pacific island administered by Great Britain, New Zealand, and

Australia. It has great phosphate deposits. Population 1000: see 3422 Nautical almanac, what is it? 3279 Nautical day, what it is, 5120 Nautical Measures: see Weights and

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Navarre. Once an independent kingdom on either side of the Pyrenees, but divided in 1512 between France and Spain. Its capital was Pamplona in the Spanish province of Navarra Navigation, direction-finder in Firth of

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Naville, Edouard Henri, Swiss Egyptologist (born 1844), 6857
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home of Jesus, 7500. See page 5505 fountain, 3467 general views, 3463, 6276 water-carrier, 6263 Nazar-i-Sherif, Afghan city, 6502 N.B., means Note well. (Latin Nota bene). Also refers to North Britain or Scotland. Scotland N.C.O. stands for non-commissioned

N.C.O. stands for non-commissioned officer
Neagh, Lough. Largest lake in the British Isles, in Ulster, Ireland. 150 square miles in extent, it is drained by the Bann
Neale, John Mason, English writer of hymns; born London 1818; died East.
Grinstead, Sussex, 1800: see 1758
Neapolitan mud flower, sea anemone, in colour, 1555 colour, 1555 eath. Mining and tinplating centre

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Neath. Mining and tinplating centre in Glamorganshire. 20,000
Nebo, Assyrian god, sculpture, 3899
Nebo, Mount, Moses views Promised
Land from it, 1244
Nebraska. American central agricultural State; area 78,000 square miles; population 1,300,000; capital Lincoln. Omaha (200,000) is the largest town. Abbreviation Nebr.
State flag, in colour, 2411
wheatfields in Elkhorn Valley, 3797
Nebuchadnezzar, Babylonian king 605-562 B.C.; conquered Jerusalem and

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Nebuchadnezzar, Babylonian king 605562 B.C.: conquered Jerusalem and
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Necho II, the Egyptian king who sent
the Phoenicians to explore Africa;
reigned about 610-595 B.C.: see 770
Neckar. German river which passes
Heidelberg and joins the Rhine at
Mannheim. 250 miles: see page 4422
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Necklet anemone, in colour, 1554
Necklet anemone, in colour, 1554

Necklet anemone, in colour, 1554
Necklet anemone, in colour, 1554
Neckar, how bees collect it, 5837
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Née, French for Born: the expression
"Mrs. Smith née Jones" indicates that
Jones was Mrs. Smith's name before

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Needles, The. Three isolated chalk cliffs forming the westernmost point of the Isle of Wight. On one of them stands a powerful lighthouse
Needle whin, what it is like, 5020
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Needlework: see Embroidery, and under names of stitches
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Negri Sembilan, flag, in colour, 2407
Negritos. The name applied to the dwarf Negroès of Africa and the Oceanic Negroes of Malaysia. The Andaman Islanders, the Samangs, and the Altas are characteristic races outside Africa, while the Batwa pygmies south of the Congo are typical members of the African group
Negroes. The division of the human race that includes the Bushman, the African Negro, the Oceanic Negro, the Asiatic Negro, the Papuan, and the extinct Tasmanian. They are characteristic Negro, the Papuan, and the extinct Tasmanian. They are characterised by black, firzy hair, broad, short, and flat noses, very dark skin, thick lips, and broad, flat feet place in British Empire, 1942
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Nelly Bly, picture in colour, 403

Nelson, Horatio, Viscount, English admiral and hero; born Burnham-Thorpe, Norfolk, 1758; killed on board the Victory at Trafalgar 1805; saved England from invasion in the Napoleonic wars: see page 1458

last signal, 5349

Pictures of Nelson arrival at Yarmouth, 1452

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Nelson. Centre of a pastoral and fruitgrowing district in South Island, New
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Nem. con., contraction of the Latin
words Nemine contradicente, meaning
No one contradicting. The term is
thus equivalent to a unanimous vote in

thus equivalent to a unanimous vote in favour of a resolution at a meeting Nemesia, flower, 6380 Nemesis, Greek goddess, 3532, 3836

Nemesia, Greek goddess, 3532, 3836
Nemophila, flower, 6382
Nen. River flowing through Northamptionshire, Cambridgeshire, and Lincolnshire into the Wash. It passes
Northampton, Wellingborough, Peterborough, and Wisbech. 90 miles
Nepal. Indian native State in the
Himalayan foothills; area 54,000
square miles; population 5,700,000; capital Khatmandu (50,000). The
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Patan, street scene, 2951
Nepalese hornbill, bird, 3255
Nephoscope, for indicating the direction
in which clouds are travelling and
measuring their apparent speed
Ne plus ultra. Latin for Nothing
further

Ne plus further

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Nernst lamp, incandescent electric lamp with a cylindrical rod of metallic oxides as a filament: 1098
Nero, Roman emperor and tyrant, the worst persecutor of the Christians; born Antium A.D. 37; reigned 54-68; see pages 2877, 4404
Corinth Canal begun by him, 4876 portrait, 2878

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Nerva, Roman emperor; born A.D. 32; reigned A.D. 96-98; adopted Trajan as his successor, 2878

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Ness, Loch. Scottish lake forming part
of the course in Inverness-shire of the
Caledonian Canal; 22 miles long, it is
about a mile broad

About a finie froad Nestor, story in the Hiad, 5303 Nestors, New Zealand birds, 3498 Net, stands for Not subject to deduction Netherlands: see Holland Néthou, Pic de, highest in Pyrenees, 5405

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Neurone: see Nerve cell
Neva. Russian river which flows from Lake Ladoga and past Petrograd into the Gulf of Finland. 45 miles: see page 6019
Nevada. American western State; area

page 6019
Nevada. American western State; area 111,000 square miles; population 80,000; capital Carson City. It is mostly arid and barren, but has valuable silver mines. Abbreviation Nev.: see page 7000

see page 7000
railway track through gorge, 3808
State flag, in colour, 2411
Nevers. Ancient French city on the
Loire, with a beautiful 13th-century
cathedral and manufactures of porcelain and iron. 30,000
pottery named after, 6737
Nevis, Ben. Highest mountain in the
British Isles, in the Inverness-shire
Grampians. 4400 feet
New Amsterdam New York once known

New Amsterdam, New York once known as, 3676, 5530 Newark. Agricultural centre of Notting-

newark. Agricultural centre of Notting-hamshire, with iron foundries and other industries. 17,000 Newark. Largest city of New Jersey, U.S.A., manufacturing chemicals, jew-ellery, cutlery, leather, hardware, cloth-ing, and glass

New Bedford. Cotton-manufacturing city in Massachusetts, U.S.A. 125,000 Newbigin, Marion, author of Man and his Conquest of Nature, 1438

Mewbolt, Sir Henry, English poet and author; born Bilston, Staffordshire, 1862: see page 4082 for poems see Poetry Index
New Britain, island of Bismarck Archivelers 2009

pelago, 3422

pelago, 3422
New Brunswick. Canadian eastern province; area 28,000 square miles; population 390,000; capital Fredericton (8000). It has farming, fishing, and timber industries, St. John (50,000) being a great port: 2194 wireless station, 2214, 2215 arms, in colour, 4985 calling the proces 2201

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logs on St. John River, 5358
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St. John River bridges, 2204
New Caledonia. Chief French Pacific
island; area 6500 square miles; population 50,000; capital Noumea. Discovered by Captain Cook in 1774, it became French in 1853, being used for came French in 1853, being used for many years as a penal settlement. Coffee, fruit, nickel, cobalt, and guano are produced

one, Thue, herea, coolar, and guano are produced
New Carthage: see Cartagena
Newcastle. Town of New South Wales,
Australia, at the mouth of the Hunter
river. The second seaport of the State,
it stands on the most important coalfield in the Commonwealth. 90,000
Newcastle - upon - Tyne. Coal - mining,
industrial, and shipbuilding centre and
port, in Northumberland. The chief
outlet of neighbouring coalfields, it has
been an important place since the
Middle Ages; there are a cathedral and
remains of a Norman castle and walls.
280,000: see page 341
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Newchwang, Manchurian port, 6504 New College, Oxford, arms, in colour, 4988

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engine

steam pump engine described, 2716, 2746, 3210

2746, 3210
model of his engine, 2747
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New Forest. Woodland district in
Hampshire, between the Solent, Southampton Water, and the Avon. Much of
it was afforested by William the Conqueror to provide a new hunting ground,
and two of his sons were killed within it,
Richard by a stag, and William Rufus
by an arrow. There are now comparatively few deer, but some of the rarer
English animals are still found there,
and there is a distinct breed of ponies:
708, 1892
Newfoundland. Oldest British North

Newfoundland. Oldest British North American colony; area 43,000 square miles; population 270,000; capital St. John's (40,000). Discovered by John Cabot in 1497, and occupied in 1583 by Sir Humphrey Gilbert, it depends mainly for its prosperity on its valuable fishing and sealing grounds, \$5,000,000 worth of fish being exported annually. There are iron-ore, timber, and paper industries, 1020, 1946, 5026 explored and mapped by \$6.000.

suzo explored and mapped by Captain Cook, 2380 arms, in colour, 4985 Burin harbour, 2329

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whipping-post from, 4864 New Glasgow. Town of Nova Scotia, Canada, in a coal-mining district. (9000)

Newgrange, Bronze Age relics, 316

Canada, in a coal-mining district. (9000)
Newgrange, Bronze Age relics, 316
New Guinea: see Papua
New Hampshire. American New
England State; area 9000 square miles;
population 450,000; capital Concord.
There is a large textile industry round
Manchester. Abbreviation N.H.
State flag, in colour, 2410
New Haven. Largest city and port of
Connecticut, U.S.A., with hardware
and cutlery industries; 170,000
Newhaven. Sussex port at the mouth
of the Ouse, with steamer services to
Dieppe, France. (6500)
New Hebrides. Pacific Island group
administered jointly by Great Britain
and France. They export maize,
copra, cotton, and coffee. Population
60,000: see page 3421
discovered by Quiros, 2378
Commissioner's flag, in colour, 2407
New Ireland. Island of Bismarck
Archipelago, 3422
New Jersey. American eastern State;
area 8225 square fmiles; population
3,200,000; capital Trenton. Textiles
are manufactured, the chief industrial
centres being Jersey City and Newark.
Abbreviation N.J.
State flag, in colour, 2410
Newlands, J. A. R., his scheme for
arranging the elements, 4223
Newlyn, school of landscape painting
formed at, 2546
Newman, John Henry, Cardinal, English
religious leader, author, and writer of
the hymn Lead Kindly Light; born
London 1801; died Edgbaston, Birmingham, 1890: see page 3833
for poems see Poetry Index
portrait, 1757
New Mexico. Mountainous southwestern American State; area 123,000
square miles; population 360,000;
capital Santa Fé. Mining and stock-

New Mexico. Mountainous south-western American State; area 123,000 square miles; population 360,000; capital Santa Fé. Mining and stock-raising are carried on. Abbreviation N. Mex: 7000 desert before and after irrigation, 5977

New Orleans. Famous cotton port of U.S.A., in Louisiana. Standing about 100 miles from the mouth of the Mississippi, it was founded in 1717 by the French, and still retains some of its

the French, and still retains some of its French characteristics. The largest commercial city of the south, it has important sugar-refining and manufacturing industries. 400,000 navigation canal scene, 3796 Newport. Capital of the Isle of Wight, on the Medina. 11,000 Newport. Port of Monmouthshire, at the mouth of the Usk, with a great export of coal from the South Wales coalfield. There are foundries and

export of coal from the South Wales coalfield. There are foundries and engineering industries and 160 acres of docks. 95,000 Newport News. Seaport of Virginia. U.S.A., on Hampton Roads. 40,000 Newport Transporter Bridge. This bridge over the River Usk was erected in 1903. The span from centre to centre of the towers is 645 feet, and the water clearance 177 feet. The suspension cables and their stays weigh 176 tons
Newquay. Seaside resort on the North Cornish coast, among fine cliff scenery. (6600)

(6600) Suspension bridge, 1718 Newry. Agricultural centre and port in Co. Down, Northern Ireland, on the canalised Newry river. Flax-spinning is carried on. 12,000 News, modern machines for sending and receiving, 1470, 1474 gathered from all parts of world, 6958 how transmitted by telegraph, 1474 New Scotland Yard, London metropoli-

New Scotland Yard, London metopolitan police headquarters, 1217

New South Wales. Oldest Australian State, colonised in 1788; area 310,000 square miles; population 2,100,000; capital Sydney (950,000). Here is much of the Australian mountain the scutter of many chain much of the Australian mountain system, the source of many short streams towards the sea, while an immense area in the interior is watered by the Darling, Lachlan, and Murrumbidgee, tributaries of the Murray. The richest part of Australia, New South Wales grows wheat, maize, barley, oats, lucerne, tobacco, sugar, vines, and fruit; its vast pastures support 34 million sheep and 3,400,000 cattle. Coal is mined at Newcastle (90,000), and silver at Broken Hill (26,000), and tin, copper, lead, antimony, and manganese are also found. Sydney, on and silver at Broken Hill (20,000), and tin, copper, lead, antimony, and manganese are also found. Sydney, on the magnificent harbour of Port Jackson, is a great commercial and incustrial centre and port; 2380, 2569

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Beremold Weit, Murrumologee River, 2580
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taxation of, 1517, 1829
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how news is received by telegraph, 1474
picture-story, 6961-68
Newt, characteristics and habits, 4745
foot, under microscope, 3882

Newt, characteristics and habits, 4745 foot, under microscope, 3882 in colour, facing 4409 pictures of different varieties, 4745 New Testament: see Bible Newton, Charles, archaeologist famous for Greek excavations, 6386 Newton, Sir Isaac, English scientist; born Woolsthorpe, near Grantham, 1642; died London 1727; discoverer of the Law of Gravitation and the principles of the laws of light, see 3612, 5689, 6310 5689, 6310

5689, 6310
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studying sunlight, 3615
Newton, John (1725-1807), clergyman friend of Cowper, 2104, 2101
Newton Abbot. Picturesque Devonshire town at the head of the Teign estuary. 14,000
Newtonian reflector. Newton's inven-

Newtonian reflector. Newton's invention for the telescope, 3612 Newtonian telescope. Usual form of

Newtonian telescope. Usual form of reflecting telescope
Newtownards. Town on Strangford Lough, Northern Ireland, with linen, muslin, and flax-spinning industries.

12,000
New Westerington, Second largest either.

12,000
New Westminster. Second largest city on the mainland of British Columbia, near the mouth of the Fraser river. Here are large lumber and salmoncanning industries. 14,000
New York. American State containing New York city (5,700.000): area 49,000 square miles; population 10,500,000: capital Albany (120,000). The most important State in the Union, it has extensive agricultural and iron mining industries, but manufacturing is easily the greatest. The Hudson and Mohawk rivers and the Erie Canal form a busy waterway between the Atlantic

and the Great Lakes, and among the largest cities are Buffalo (510,000), Rochester (300,000), and Syracuse (170,000). Abbreviation N.Y. flag, in colour 2410
Lake George, 3808
New York. Commercial capital of America, and after London the greatest city and port in the world. Founded as New Amsterdam by the Dutch in 1621, New York proper stands on Manhattan Island, between the Hudson and East rivers; but it also includes the Bronx, Staton Island, and the west end of Long Island, with Brooklyn. The Brooklyn suspension bridge and other bridges connect this part of the city with Manhattan. As a commercial and shipping centre New York is unrivalled in America; its huge skyseraper buildings and fine parks are famous. The population is very cosmopolitan, and includes more Jews and Irish than any city in the world. 5,700,000: see pages 3795, 3799, 6476 New Amsterdam first name for, 1948, 3676

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Broadway, 3802
Bush Building, 3804
Custom House, 6611
Flatiron Building, 3805
General Grant's Tomb, 3790
general view, 3791
Liberty Statue, 3685
Municipal Building and old City Hall, 3804

Liberty Statue, 3685
Municipal Building and old City Hall,
3804
Pennsylvania station, 3802
Shakespeare statue, 4477
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University Hall of Fame, 6605
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Woolworth Building, 3805, 4999
New Zealand. British Dominion consisting of North, South, and Stewart
Islands, and Polynesian dependencies; area 105,000 square miles: population
1,350,000; capital Wellington (110,000)
Discovered in 1642 by Tasman, it was visited in 1769 by Cook, and in 1825 colonisation began. Its prosperity depends largely on its rich pastures, there having been 3,150,000 cattle and over 23 million sheep in 1921: but sufficient crops are grown for home requirements.
Exports include butter, cheese, frozen meat, wool, hides, tallow, and gold, and the chief towns are Auckland (170,000). Christchurch (110,000), and Dunedin (75,000). There are now about 53,000 Maoris: 2693
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plant life, 2700
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Ngawun River Scherzer Bridge. Rolling
lift bridge near Rangoon, Burma, which
gives a 220 feet passage for ships
Niagara Falls. Stupendous falls of the
Niagara river, which divides Ontario,
Canada, from the American State of
New York. The cataract, over which
100 million cubic feet of water flow in
an hour, is divided into two by Goat
Island: the Horseshoe Falls on the
Canadian side are 158 feet high and
3100 feet across, and the American
Falls are 167 feet high and 1080 feet
across. In 63 years the Horseshoe Falls

Falls are 167 feet high and 1080 feet across. In 63 years the Horseshoe Falls have worn back their cliff 335 feet. Electrical power is generated by diverting the waters of the falls through tunnels, 106, 1348 painting by F. E. Church, 3287 whirlpool below them, 6102 woman wheeled across on rope, 3406 Blondin crossing on tight-rope, 3407 generators at power station, 5607 power houses, 2324, 5604 views, 115, 2500, 5604 Niagara Falls and Clifton Bridge. This cantilever bridge contains the largest

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Nicaragua. Republic of Central America; area 52,000 square miles; population 650,000; capital Managua (30,000). The most prosperous parts ite towards the Pacific, the Mosquito Coast on the east being marshy and unhealthy though the jungles yield cedar, gums, and medicinal plants. Fruit, hides, coffee, and cocoa are exported: 6999
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map, plant and industrial life, 6884-85 Miccola Pisano (1206-1278), Italy's first great sculptor, 4521
Nice. Largest French Riviera town, founded by the Greeks as Nicaca. The old town has narrow and picturesque streets; the new town has splendid boulevards, and is famous as a health resort. There are a mined castle and a

boulevards, and is tamous as a health resort. There are a ruined castle and a cathedral 160,000: see page 4173
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Nicholas St., of Bari, patron saint of Russia, and the subject of many legends. According to one tale, three bags of gold were thrown by him through a window as dowries for the daughters or a poor man, thus originating the idea of Santa Claus a corruption of the Russian Sant Nicolaus, 6809

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on its upper course. 2000 miles: 6743
Lander brothers explore it, 3000
Nigeria. Chief British West African
colony; area 336,000 square miles;
population 16,500,000; capital Lagos.
Cotton, cocoa, ground-nuts, cereals, rice,
coffee, yams, tobacco, palm oil and
kernels, copal, rubber, mahogany, and
hides are produced, and tin and coal
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120,000: see pages 6020, 6024
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Nikolaiev. Russian naval and grain port
on the Black Sea. 100,000
Nil desperandum, Latin for Never despair
Nile. Longest African river, draining
1,100,000 square miles. Rising in Lake
Victoria Nyanza, it flows through the
Sudan and Egypt into the Mediterranean, which it enters through a widdelta. Its value to Egypt is immense,
for its summer flood annually fertilises
a vast area of land. Surplus water is
conserved for irrigation by the Assouan
Dam, and a still larger dam is being
built on the Blue Nile at Sennar in the
Sudan. When the Nile is high, it is
navigable up to Gondokoro, 2900 miles
from its mouth, but otherwise six
cataracts prevent navigation between
Assouan and Khartoum. The Bahr el from its mouth, but otherwise six cataracts prevent navigation between Assouan and Khartoum. The Bahr el Glazal, Blue Nile, and Atbara are its chief tributaries: Khartoum, Omdurman, Wadi Halfa, Assouan, Assiout, Cairo, Damietta, and Rosetta stand on its banks. 3500 miles: 2403, 6742 canalised in 4000 B.C. 427, 6802 influence on Egypt, 2250, 6862 mud left by flooding, 425 source sought by James Bruce, 2998 temples on its banks, 5380 worship of the Nile by ancient Egyptians, 425, 2494 what is the sudd on the Nile? 3772 camels ploughing on banks, 1531 Omdurman grain market, 3319 Ripon Falls, 2500 trading boats on it, 2499 map of delta, 2493 Nile, battle of the, Nelson's great naval victory over the French in 1798. The French were dominating the Mediterrancan, and Nelson was sent to seek the mounts of floor.

victory over the French in 1798. The French were dominating the Mediterranean, and Nelson was sent to seek the enemy's fleet. He found 17 French warships anchored in Aboukir Bay, and promptly sailed into the uncharted bay, inside and outside the enemy ships. This daring manoeuvre enabled him to overwhelm the French fleet, their flagship L'Orient being blown up: 1453 Nilgai, harnessed antelope. 1399, 1308 Nilgai, harnessed antelope. 1399, 1308 Nilgai, Hills. Mountain range providing a popular summer resort for Europeans in the south of India. 8760 feet Nimbus cloud, what it is, 2921, 2871 Nimeguen. Picturesque old Dutch city on the Waal. 70,000 Nimes. Ancient cathedral city of Languedoc, France, famous for its Roman remains. Its chief ancient monuments are the Roman Nymphaeum, a mausoleum, baths, two gateways, and

ments are the Roman Nymphaeum, a mausoleum, baths, two gateways, and an amphitheatre to seat 20,000 spectators; close by is the Pont du Gard, the most perfect existing Roman aqueduct. Nimes manufactures silk and cotton goods, boots, carpets, and shawls. 80,000; see pages 4172, 5502 Roman temple, now called Maison Carrée, 5504, 5507 Roman baths, 4180 Nimrod, the mighty hunter, 497 Nimrod, Shackleton's ship, 6554 Nimrud, excavation there, 6720 Nine, the magical nine, trick, 2114 Mimrud, excavation there, 6720
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nitrates by measuring the gas given off

nitrates by measuring the gas given off Niven, Professor, work on Mayan civi-

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No. stands for number. It is short for the Latin word Numero, by number Noah, sons build city, 497 story of his ark 376 picture of the Ark, 374

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willing, sometimes written, willy-nilly
Nollekens, Joseph, English sculptor;
born London 1737; died there 1823;
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Nolle prosequi, term in English law
used where a Crown prosecution is
abandoned. The words in Latin mean
To be unwilling to prosecute

abandoned. The words in Latin mean To be unwilling to prosecute Nombre de Dios, Spanish port in Panama, 6998 attacked by Drake, 5210 Nom de guerre, French for War name,

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They are tall, red or yellow haired, their one stream, and so on the Nen. A great centre of the boot and sloe industry, it has a Roman Catholic cathedral. 95,000;
See Pisheries Guard, flag, in Colour, 12406
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North Sea Canal, Dutch waterway to Amsterdam, 5530 Nordenskiold, Dr. Otto (born 1869), Sweish Antarctic explorer, 6556
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Nordic Races. The branch of the White race that inhabits northern Europe. They are tall, red or yellow haired, their eyes grey-green or blue-grey, and long headed. The Scandinavians today and the ancient Goths are typical Nordic peoples: 5765
Nore, The. Sandbank and lightship at

North peoples: 5765

Nore, The. Sandbank and lightship at the mouth of the Thames. A naval mutiny occurred here in 1797

Nore. Tributary of the Irish Barrow, in Leinster

in Leinster
Norfolk, Duke of, coat-of-arms, 4987
Norfolk. English eastern county; area
2054 square miles; population 505,000;
capital Norwich. Here are Yarmouth,
King's Lynn, and Thetford, the watering places of Cromer and Hunstanton,
the Broads, and the mouth of the
Ouse; fishing and agriculture are im-

the Broads, and the mouth of the Ouse; fishing and agriculture are important Angles settle in, 587 Pliocene deposits in, 1878 Norfolk. Port of Virginia, U.S.A., on an arm of Chesapeake Bay. Lumber, fruit. grain, and cotton are the principal exports. 120,000 Norfolk Broads, similarity to Dutch landscapes, 1426, 842 Norfolk Island. British Pacific island about 400 miles from New Zealand, The descendants of the Bounty mutiners were brought here from Pitcairn in 1856. Population 750 Norinder, Swedish scientist, investigations on lightning discharges, 238 Norman architecture, account of, 5865 castle with its square keep, 6235 churches built in England, 449 English cathedrals, 5866

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Bayeux Tapestry story, 709–716
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Normand, Ernest, Esther denouncing
Haman, painting by, 3225
Normandy. One of the most important
of the old French provinces, bordering
the English Channel. At the beginning
of the 10th century it was seized by the
Northmen under Duke Rollo; their
descendants invaded England with
William the Conqueror, Normandy
being united with England up to 1204.
It was twice reconquered during the It was twice reconquered during the Hundred Years War, the French finally regaining it in 1450. Among its towns are the old capital city of Rouen; the important ports of Havre, Cherbourg and Dieppe; and the watering-places of Trouville, Etretat, and Deauville. It contains also the beautiful old towns of Lisieux, Caen, and Bayeux, Falaise, the birthplace of William the Conqueror, and Mont St.

William the Conqueror, and Mont St. Michel: 4174
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Norrköping. Swedish industrial town,
making cloth, cotton, paper, sugar,
and tobacco. 60.000: see page 5772
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English statesman, his American policy,
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round Norman church at, 5868
arms, in colour, 4991
Sulgrave Manor, 1835
Northamptonshire. English agricultural county; area 998 square miles;
population 302,000; capital Northampton. Other towns are Peterborough, Kettering, and Welling-

Northanger Abbey, Jane Austen's first novel (published after her death), 2350 North Borneo. British colony in the East Indies; area 31,000 square miles; population 260,000; capital Sandakan. Timber, rubber, tobacco, sago, rice, gutta-percha, coconuts, and rattans are produced

North British Railway, engine in colour.

1044

North Cape. Headland on the island of Magerö, in the extreme north of Norway. It is frequently visited by tourists in the summer time to see the midnight sun

One of the earliest North Carolina. One of the earliest American States, having been explored North Carolina. One of the earliest American States, having been explored by Raleigh in 1584; area 52,000 square miles; population 2,600,000; capital Raleigh. Maize, cotton, wheat, sweet potatoes, and oats are extensively produced, Wilmington being the chief port. Abbreviation N.C.

State flag, in colour, 2410

North Channel. Channel dividing Ireland from Scotland and connecting the Irish Sea with the Atlantic

Northcliffe, Alfred Harmsworth, Viscount, British newspaper owner; born Dublin 1865; died 1922; Arctic expedition financed by, 6438

North Dakota. Northern American prairie State; area 71,000 square miles; population 650,000; capital Bismarck. Wheat-growing and stock-raising are carried on. Abbreviation N. Dak. State flag, in colour, 2411

North Eastern Railway, engine in colour, 1043

North-East Passage, Hudson's search for, 5212

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Northern brown butterfly: see Scotch

Northern brown butterfly : see Scotch

argus butterfly Northern Ireland. Union of the six counties of Antrim, Down, Armagh, Londonderry, Tyrone, and Fermanagh; area 5263 square miles; population 1,250,000; capital Belfast Governor-General's flag, in colour, 2406 See also Ireland

Northern Lighthouses, flags, in colour,

2406 2400 Northern Lights: see Aurora borealis Northern mythology: see Stories North Foreland. Headland at the easternmost point of Kent, in the Isle

of Thanet North Magnetic Pole, what it is, 6842 Northmen: see Norsemen and Vikings North Pole, what it would be like if we could stand there, 6846

cound stand there, 6846
See also Arctic and Pole
North Sea. Branch of the Atlantic lying between Great Britain and the Continent. Its average depth is only 120 feet in the south and 350 feet in the north; it contains the Dogger, Jutland, and Great Fisher banks, on all of which vast numbers of cod and herring are caught. Comprecially it is of impressed. vast numbers of cod and herring are caught. Commercially it is of immense importance, its great ports including Aberdeen, Dundee, Leith, Newcastle, Sunderland, Hull, Grimsby, London, Antwerp, Rotterdam, Amsterdam, Bremen, Hamburg, Gothenburg, Christiania, and Bergen fisheries, 216, 5106 once dry land, 1880 fishing trawlers at work, 5724–25

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English adventurers discussing journey,

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Norton, Caroline: for poems see Poetry Index
Norton, Thomas, English writer; born London 1532; died Sharpenhoe, Bedfordshire, 1584; wrote Gorbodue, the first English tragedy, with Thomas Sackville: 857
Norwäy, Kingdom of northern Europe; area 125,000 square miles; population 2,650,000; capital Christiania (260,000) now called by its old name of Oslo. It consists largely of mountain tablelands, and only three per cent of its area is fit for cultivation, oats, barley, rye, and potatoes being the chief crops. Fishing is the chief occupation, the cod, smelt, and sprat fisheries being very important; but the dairy-farming, timber, iron-ore, paper, and pottery industries are increasing. The greater part of the population lives along the coast or on the flords, the large towns of Bergen, Stavanger, Trondjhem, and Drammen all being ports. Norway formed part of Denmark from 1397 to 1814, when it was united with Sweden, and it was not until 1905 that it again became a separate State: 5765

and it was not until 1905 that it again became a separate State: 5765 art of, 3398
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Norwegian saw-fly, in colour, 5714
Norwich. Capital of Norfolk, on the
Wensum. Important for its Flemish
wool industry in the Middle Ages, it
now makes boots and shoes, crape,
starch, and mustard, and is noted for
its fine spired cathedral. Borrow's
house here is a museum. 120,000
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diagram, 3903
Nota bene, Latin for Note well; usually written N.B.

Notochord, spinal column's gristly fore-runner, 5345
Notre Dame, cathedral of Paris, 5988
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Nottingham. Capital of Nottingham-shire, on the Trent. Famous especially
for its lace industry, it also has con-siderable tobacco, engineering, and
leather trades, a historic castle, and a
Roman Catholic cathedral. Here
Charles Stuart set up his standard in
1642. 270,000: see page 522
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Nottinghamshire. English Midland county; area 844 square miles; population 640,000; capital Nottingham. Here are the Trent, the Dukeries, and remains of Sherwood Forest, while there is a large coalfield in the south west. Towns include Mansfield, Newark, Retford, and Southwell

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Nouveau riche, French for Newly rich, upstart
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Nova Persei, star, 3974
Nova Scotia. Canadian castern maritime province; area 21,500 square miles; population 525,000; capital Halifax (60,000). Much fruit is grown, the Valley of Annapolis alone having exported 1,800,000 barrels of apples in 1921; dairying is important, and the wool clip exceeds a million pounds weight. Around Sydney, Cape Breton Island, there are important coalmines, while Halifax is a great port for transattantic liners; 2074, 2192
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Nova Zembla. Russian Arctic archipelago covering about 35,000 square miles

pelago covering about 35,000 square miles
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Novgorod. Historic city of north-west Russia, having been the cradle of the Russian nation. It once had 400,000 inhabitants, and was called Novgorod the Great. Its 11th-century cathedral is modelled after St. Sophia at Constantinople. 30,000: see 5893, 6020

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Nyala, harnessed antelope, 1399

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Nyala, harnessed antelope, 1399
Nyala, harnessed antelope, 1399
Nyasa, Lake. Southernmost and third largest of the great lakes of Central Africa, lying between Nyasaland, Portuguese East Africa, and Tanganyika Territory. 11,000 square miles in extent, it is 350 miles long, its greatest breadth being 45 miles. Livingstone and Albrecht Roscher explored it in 1859: see pages 3002, 6742
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and a Roman Catholic cathedral.
(6300)

Argylishire, with a splendid harbour and a Roman Catholic cathedral. (6300)
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Obi River Bridge, on the Trans-Siberian railway; 2613 feet long
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Pacific		miles 63,986,000		in feet 32,089
Atlantic Indian		31,530,000 28,350,000	•••	31,368 22,966
Arctic Antarctic	::		::	13,200

Pacific . 12,564 Indian . 1 Atlantic . 10,368 Antarctic .. Average depth of all the Earth's Oceans . . .

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(240,000). One of the richest States in the Union, it has 12,000 square miles of coalfields, an immense production of maize, and large iron, glass, pottery, and textile industries. Among the chief cities are Cleveland (800,000), Cincinnati (400,000), Toledo (250,000), Akron (210,000), Dayton (160,000), and Youngstown (140,000) Cleveland public square, 3803 State flag in colour, 2410
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Kurile Islands. It is a centre of the whale fishery Oklahoma. South-central American State; area 70,000 square miles; population 2,100,000; capital Oklahoma. Formerly it contained the Indian Territory, but Indians now compose only about one-twentieth of the population. Much oil is produced. Abbreviation Okla. State flag in colour, 2411 Olaf, St., king of Norway, enforced Christianity in the north by terrible cruelties, finally being expelled from

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O.M. stands for Order of Merit
Omagh. Capital of Co. Tyrone, Northern Ireland, with a cathedral and remains of a castle. (5000)

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Omaha. Largest city of Nebraska, U.S.A., with meat-packing, smelting, railway, and engineering industries. 200,000

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about 500-460 B.C.: see page 4028
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milk, butter, and cheese of the Dominion and more than half the fruit, while forests cover 100,000 square miles. Gold, silver, nickel, iron, and copper provide great mineral wealth; and manufactures, at Hamilton (145,000 especially, are important. Here are Ottawa, the Federal capital, London, Brantford, Windsor, Hull, and other flourishing towns arms, in colour, 4985 flag in colour, 4985 flag in colour, 4987 grain elevator at Fort William, 2073 Lake of Bays, 2497 Trent Canal boat lift, 2200 Onyx, form of chalcedony, mineral, 1301 Oolite, meaning of word, 1505 timestone with concretions, 2004 map of strata in Britain, 1634 See also Mesozoic Era Ooze, globigerina, 2495 Opah, fish, in colour, facing 5100 Opal, form of quartz. 768 precious mineral, 1301

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times as great as all the land above sealevel. One and threequarter times as
big as the Atlantic, it contains the
greatest known ocean depths, a sounding of 5350 fathoms having been obtained off the Philippines. Few large
rivers flow into it, but it is remarkable
for its immense number of islands,
among them New Zealand, the Philippines, the East Indies, Japan, the
Alcutian Islands, and the Melanesian,
Micronesian, and Polynesian groups.
Its splendid harbours include Vancouver, San Francisco, Valparaiso,
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procedure. A member unable to take
part in important divisions tries to
obtain a pair, that is to say, a member
in like case who holds opposite views on
the question. In this way the loss of
a vote on one side is cancelled by the
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The ancient Panormus, the stronghold
of the Carthaginians in Sicily, it was
successively conquered by Pyrrhus, the
Romans, the Vandals, Belisarius, the
Saracens, the Pisans, and the Normans,
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East Indies, under Australian administration; area 160,000; capital Port
Moresby; peopled by negroid tribes, it
is mountainous and thickly forested;
copra is the chief export, though there copra is the chief export, though there is some trade in tobacco, gold, rubber, sisal, and copper: the fauna and flora are brilliant: 2444, 2448, 3421 flag in colour, 2407 native fire brigade, 3430 saluting British and German flags, 1955 village scene, 3434 map showing animals, plants, indus-tries, 3429 Papuans. Oceanic Negroes inhabiting New Guinea and its surrounding islands. New Guinea and its surrounding islands. Bold, impetuous, noisy, and excitable, they are a cruel, cannibal race. They have long faces, projecting eyebrows, and large noses, and they live in a communistic manner, many in pile-dwellings. Their name means frizzly, and their hair is worn like a moop. communistic manner, many in pine-dwellings. Their name means frizzly, and their hair is worn like a mop Papyrus, paper made from, 6337 member of Sedge family, 3306 used by Egyptians, 426, 2034, 6866 what it is, 118, 684, 1439
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America; area 110,000 square miles;
population 800,000; capital Asuncion.
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was settled by the Spanish in 1535, and
became independent in 1811. Most of
it consists of dense involve or greecy.

became independent in 1811. Most of it consists of dense jungles or grassy uplands, the chief exports being hides, timber, tobacco, meat, quebracho, and Paraguay tea, 7012 status of Indians, 6998 flags in colour, 4011 Government Palace, 7009 Maps animal life of the country, 6878–79 general and political, 6873 industrial life, 6880–81 physical features, 6874–75 plant life, 6876–77 Paraguay tea: see Yerba maté Parakeet, characteristics, 3500 varieties, 3499; in colour, 3141, 3142, 3144

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Paramatta: see Parramatta
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The investing of the Sagré Cogur and the modern churches of the Sagré Cogur and the modern cha rt; the Sorbonne; the Opera; the Palais de Justice; and the modern churches of the Sacré Coeur and the Madeleine. The famous Eiffel Tower, of iron, 985 feet high, was creeted for the exhibition of 1889. Besides being a great financial, publishing, and educational centre, Paris has many and varied industries, notably the manufacture of millinery invellery and

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containing an 11th-century cathedral,
60 churches, a university, and the

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south of the Rio Negro. They are
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carry themselves in a stately manner.
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noses rather short, and their eyes small.
They are a peaceful people who are
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Paterson, city of New Jersey, U.S.A., with an important manufacture of silk. 140,000
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Patras. Chief port of western Greece, exporting olive-oil, wine, and currants, 50,000; see page 5146
Patrick, St., Irish saint who is said to have been born in Scotland and sold to an Irish chieftain by the Picts and

have been born in Scotland and sold to an Irish chieftain by the Picts and Scots. He escaped and studied in Gaul, but, feeling a call to convert the heathen in Ireland, was ordained, and started his ministry in 405. He made many converts and founded churches and monasteries all over the country. He is usually shown banishing the serpents, or with a shamrock leaf, which he used as a symbol of the Trinity: 2401, 3062, 5982, 6918 baptising two women, 3065
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Hore is the Gyachyprod castle of the

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Augustine in his mission to Britain,
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means an inquisitive busybody

hope I don't intrude. Hence Paul Pry means an inquisitive busybody Pausanias, Greek traveller and writer on art; lived in the second century B.O.: see page 4137
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British peace, and formed on the analogy
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the British empire
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Payne, John Howard, American writer
of plays and songs; born New York
1791; died Tunis 1852; author of
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Peel, Sir Robert, English statesman;

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Peel, Sir Robert, English statesman;
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Peking. Capital of China since 1264, having been capital of Kublai Khan. It is divided by walls into Tartar and Chinese cities: inside the Tartar city is the Imperial City, and in this again the Forbidden City. Peking is a great trading and railway centre, and its buildings include the temple of Confucius and the Temple of Heaven. 1,300,000: see pages 5628, 6510

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Wales; area 614 square miles; population 92,000; capital Pembroke.
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Pennine Chain. Chief English mountain
system, running from north to south in
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Lancashire. Its chief peaks are Cross
Fell, 2900 feet, Mickle Fell, 2600 feet,
Whernside, 2400 feet, and Ingleborough
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by the Tyno Gap and in the centre by
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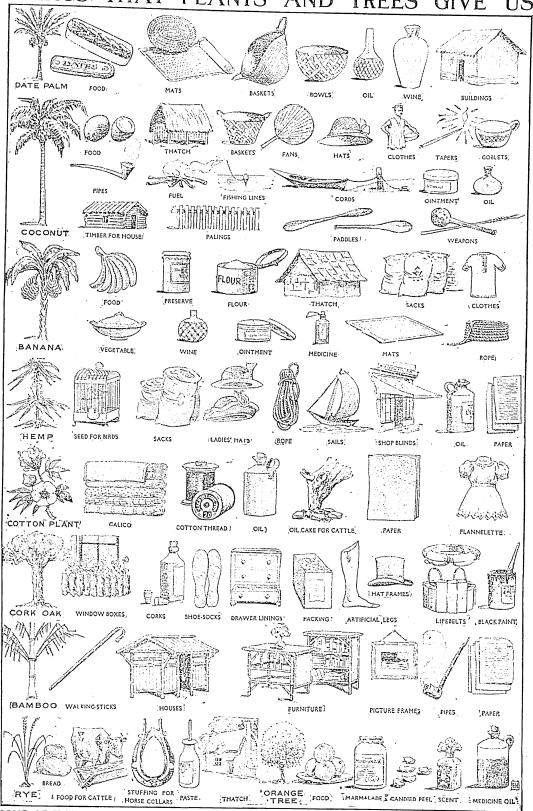
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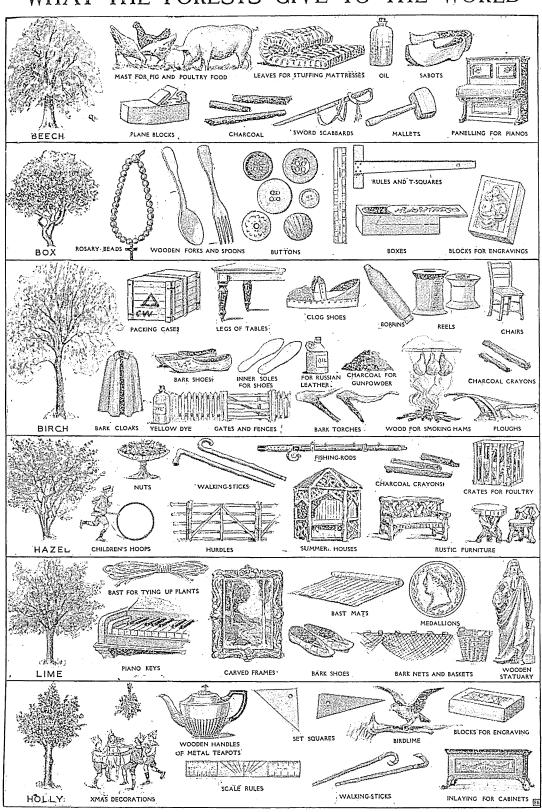
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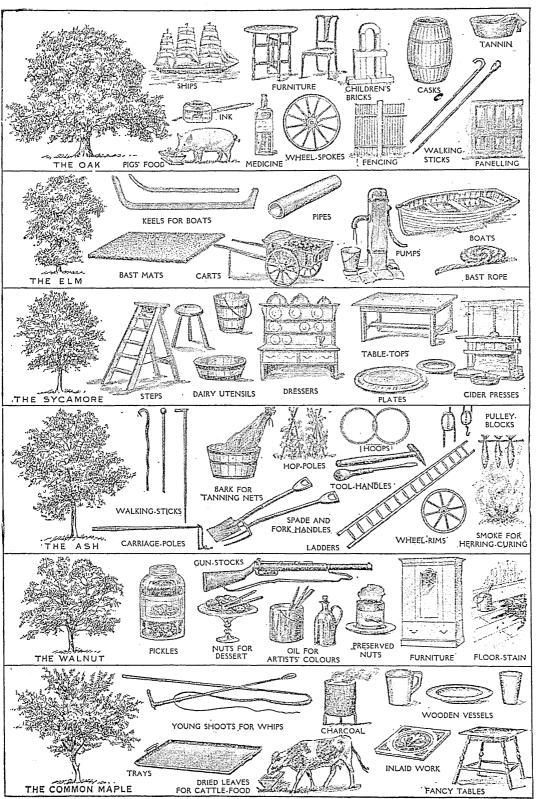


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of rainfall Plymouth. Port, naval station, and fishing centre in Devonshire, at the mouth of the Plym. Plymouth Sound is a splendid anchorage, and it was from here that the Black Prince, Drake, Hawkins, Cook, and the Mayflower sailed on their voyages, Drake having been mayor in 1585. Devonport is now part of Plymouth. 210,000: see pages 1084, 1206

now part of Plymouth. 210,000: see pages 1034, 1206
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P.O. stands for Post Office, Patent Office, or postal order
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Port Elizabeth. Chief South African southern port, on Algoa Bay. A cathedral city, it has a large trade in ostrich feathers, and makes jam, boots, and flour. 40,000
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Porto Rico. Fertile West Indian island
under American administration; area
3600 square miles; population
1,300,000; capital San Juan (70,000).
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bananas are abundantly produced:
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South Australia. Here the ores of the
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Portugal. South-western maritime Republic of Europe; area 35,500 square
miles; population 6,400,000; capital
Lisbon (500,000). It is a fertile agricultural country, producing rye, maize,
olives, figs, oranges, and especially
wine, that of Oporto being famous.
Pig-breeding, cotton-spinning, and the
sardine fishery employ a large proportion of the population. Lisbon and
Oporto (215,000) are the only large
cities; others are Coinbra, Braga,
Funchal, Setubal, Elvas, and Evora.
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different things. The English apply the
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Punjab, Indian northern province, in
the plain of the Indus; area 100,000
square miles; population 21,000,000;
capital Lahore (280,000). The rainfall
is scantry, but by means of irrigation
canals vast crops of cereals, cotton, oilseeds, and sugar are produced, while
rock-salt is a great source of wealth.
More than half the people are Moslems,
and more than a third Hindus, the
Sikhs numbering about 3,000,000.
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Punjabis. An Indo-Mediterranean race
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people of magnificent physique, and are
divided into several groups, of whom
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born Brymore, Somerset, 1584; died London 1643; see pages 526, 1208, 521 Pynson, Richard, English pioneer of printing; born in Normandy probably about 1460; died London 1530; see page 1517

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forming the boundary between France
and Spain. It is 270 miles long, and
between 25 and 90 miles broad, while
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Maladetta, its highest peak, rises to
11,200 feet. On the northern slope
are many health resorts: 4164, 5269
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produced by burning jets of hydrogen in glass tubes
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Q.E. means Which is. The letters Q.E. means Which is. The letters stand for the Latin words Quod est Q.E.D. means Which was to be demonstrated. The letters stand for the Latin words Quod crat demonstrandum Q.E.F. means Which was to be done, standing for the Latin words Quod

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Quarter Days. In England, Wales, and Ireland, the days marking the four quarters of the year: Lady Day, March 25; Midsummer Day, June 24; Michaelmas Day, September 29; and Christmas Day, December 25. In Scotland the quarter days are Candlemas, February 2; Whitsun, May 15; Lammas, August 1; and Martinmas, November 11
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Quebec: Largest Canadian province
on either shore of the St. Lawrence;
area 707,000 square miles; population
2,000,000; capital Quebec (95,000). It
was first visited by Cartier in 1535,
Quebec city being founded by Champlain in 1608, and existed as a French
colony up to 1763; five-sixths of the
people are of French descent, speaking
French. The chief industries are dairying lumbering, and paper-making, the
forest resources Deing enormous;
175,000 square miles are said to be still
untouched. The world's largest supply
of asbestos is produced, while Montreal
(620,000) is the largest city and chief (620,000) is the largest city and chief export centre in the Dominion

(620,000) is the largest city and chief export centre in the Dominion arms, in colour, 4985 flag, in colour, 2407
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Quebec. Oldest and most historic city of Canada, having been founded by Champlain in 1608. Standing in a magnificent position above the St. Lawrence, it was the capital of New France up to 1759, when General Wolfe captured it; the greater part of the population is of French descent. Quebec is dominated by its massive citadel, and has a university and Anglican and Roman Catholic cathedrals. The timber trade is the most important industry, but there are manufactures of machinery and leather goods. 95,000: see page 2073 origin of name, 4387
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Pictures of Quebec Champlain monument and Montcalm

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under construction, 553 Queens' College, Cambridge, arms, in colour, 4988

Queen's College, Oxford, arms, in colour. 4988

Queen's County. County of Leinster, Ireland; area 664 square miles; population 55,000; capital Maryborough Queensland. Australian north-eastern State; area 675,000 square miles; population 760,000; capital Brisbane (220,000). A great part lies within the tropics, and here much sugar is grown; maize is the chief crop, and cereals do well on the Darling Downs. Sheep number over 18 millions and cattle 7 millions; the export of hardwood timber is important; and gold, silver, copper, tin, and coal are mined. Rockhampton (24,000), Townsville (21,000), Maryborough, and Bundaberg are rising ports; Toowoomba (24,000), Ipswich ports; Toowoomba (24,000), Ipswich (21,000), and Charter Towers are the chief inland centres

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flag, in colour, 2407
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naval station on an island in Cork
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Qniberon Bay, hattle of, naval engagement between the British under Hawke
and the French, in 1759, during the
Seven Years War. Risking his ships
among uncharted rocks while a gale
was blowing, Hawke chased and attacked the French and utterly destroyed their fleet, thus preventing an
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R. stands for Take, used in doctor's prescription, and standing for the Latin word Recipe
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Ins. of	Cubic it.	gallons	
rain	of water	per	Tons pe
falling	per acre	acre	acre
1	3630	22,635	101.1
$\frac{2}{3} \dots$	7260		202.2
3	10,890		303.3
4	14,520		404.4
5	18,150		505.5
6	21,780		606.6
7	25,410		707.7
8	29,040		808.8
9			909.9
10			1011.0
îi			
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the south.

Raiputs, Word meaning "sons of kings," and applied to a Hindu race of fine people who are dominant in northern India. They entered India in the carly centuries of the Christian Era, and belong to the Turki group of races: see pages 1942, 2809

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An agricultural and railway centre, it
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between the freezing and boiling points
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shire, on the Clyde. Shipbuilding is
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Renfrewshire. Scottish lowland county;
area 240 square miles; population
300,000; capital Renfrew. Here are
Paisley and the Clyde ports of Port
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railway centre, it has a university, a
modern cathedral, and some tanning
and foundry industries. 80,000
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died on Riviera 1919: see page 3044
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Repertory theatre. One staffed by a
permanent company where a large
number of plays are staged, no play
being performed for more than a few
times in succession
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tions, sees that the election is carried out as the law requires, and reports the result to the Speaker Reuben, son of Jacob, 989 Réunion. French island in the Indian Ocean; area 1000 square miles; population 175,000; capital St. Denis. Occupied in 1638, it exports much sugar, and two-thirds of the population are French

Reuss, Swiss river flowing into Lake of

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Reval. Or Tallinn, capital and chief port of Esthonia, exporting flax and cereals. There are a cathedral and medieval guild-houses. 125,000

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R.H. stands for Royal Highness
R.H.A. stands for Royal Horse Artillery

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Rheims. Or Reinis, city of Champagne,
France, with a great trade in wine and
an extensive textile industry. Its
Gothic cathedral, one of the noblest in
France, was irreparably damaged by
the German bombardments, 1914–18,
but the main structure is still standing.
115,000: see page 5989
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Rheostat, electro-magnetic apparatus
for regulating a circuit and enabling any
degree of resistance to be maintained:
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Rhesus monkey, 164

see page 611
Rhesus monkey, 164
R.H.G. stands for Royal Horse Guards
Rhine. Greatest river of western
Europe, rising near the St. Gothard
Pass, in Switzerland, and flowing into
the North Sea in Holland, by the Waal
and Lek. It passes between Switzerland and France and Germany, and
through Germany, and is navigable to
beyond Basle; it has more traffic than
any other European river. It drains
75,000 square miles, its tributaries
including the Aar, Neckar, Main, Lahn,
Moselle, Rühr, and Lippe. It passes

Basle, Strasbourg, Spires, Mannheim, Worms, Mainz, Coblenz, Bonn, Cologne, Düsseldorf, Nijmegen, Arnhem, Dordrecht, and Rotterdam. 760 miles: see pages 4304, 4666 legends of the Rhine, 4422 pictures, 4423, 4429, 4436 Rhino-birds, on back of rhinoceros, 1769

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Rhodesia. British Central African
colony; area 440,000 square miles;
population 1,000,000; capital Salisbury (5200 whites). It consists largely
of a lofty tableland suitable for British
settlement, but its chief wealth lies
in its gold mines, which have already
produced over £51,500,000 worth of
the metal. Coal, silver, copper, lead,
diamonds, chrome, and asbestos are
also found. The colony is divided into
Northern and Southern Rhodesia, of
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Rhododendron, pink pearl, flower, 6380
Rhododend, coalmining centre in the
Northern and Coalmining centre in the
Northern and Southern Chowsers white

things Rhondda. Coalmining centre in the Valley, Glamorganshire. Rhondda Valley, 170,000

Rhondda Valley, Glamorganshire.
170,000
Rhone. River rising in the Swiss Bernese Oberland and flowing through France into the Mediterranean. It is navigable up to Lyons, while there is also considerable traffic on Lake Geneva. Sion, Geneva, Lyons, Vienne, Valence, Avignon, and Arles stand on it. 500 miles: see pages 4169, 4678 river at Avignon, 4175
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R.I.B.A. stands for Royal Institute of

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has many fine buildings and monuments and a splendid cathedral. 180,000

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France, on the Scinc. A centre of the cotton industry, it has also large rail-way workshops; though 80 miles from the sea, it is one of the first ports of France. Rouen is famous for its noble Gothic churches, particularly the cathedral, St. Ouen, and St. Maclou. Joan of Are was burned here in 1431. 125,000:

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Academy R.S.L. stands for Royal Society of Literature
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R.S.P.C.A. means Royal Society for the Prevention of Cruelty to Animals R.S.V.P. stands for the French words Répondez, s'il vous plait, Reply, if you please Rt. Hon. stands for Right Honourable Rt. Hon. stands for Right Honourable Rt. M.S. Stands for Right Honourable Rt. Stands for Rt. Stan

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what does crossing the Rubicon mean? 2874, 5615
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are the industrial towns of Dortmund,
Bochum, Essen, Mühlheim, Duisberg,
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Rumania. Kingdom of eastern Europe;
area 122,000 square miles; population
17,400,000; capital Bucharest (400,000).
Besides its old provinces of Wallachia,
Moldavia, and Dobrudja, it now comprises Bessarabia, Transylvania, and
parts of the Hungarian plain; most of
it lies in the plain of the lower Danube,
but Transylvania is a plateau enclosed
by the great curve of the Carpathians.
In the Banat especially, it is one of the
most fertile European countries, producing large crops of wheat, maize,
tobacco, wine, and sugar-beet. Petroleum is a valuable export, and iron,
coal, and salt are produced. The
largest towns are Chisinau (Kishenev),
Ismail, Jassy, Braila, Galatz, Temisoara
(Temesvar) Sibiu (Hermanstadt), Cernauti (Czernowitz), Cluj (Koloszvar),
and Constantza, a Black Sea port.
The Rumanians belong to the Greek
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flags of kingdom in colour, 4012 oil reservoir and refineries, 3088 peasants, 5149 peasants, 5149
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map of animals, industries, and plant life, 5165 map, general and political, 5164 Rumanians, a people of very mixed race who speak a language of mixed Latin and Slavonic origin. Many Roman colonists settled in Transsylvania and Moldavia, especially in the 13th century, on the break-up of the Byzantine Empire, but the Huns, Finns, Magyars, and Slavs occupied these regions formerly. The nation today sets store by its Latin origin

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Ruskin, John, English att and atchitectural critic and social reformer; born London 1819; died Brantwood, Lake Coniston, 1900: see page 3218 description of mosses, 3412 on wealth, 5018, 6376 at chapel when a boy, 3219 copying pictures of Giotto, 3215 portraits, 1827, 4132
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Rusniaks: see Ruthenes
Russell, Henry, English writer of songs;
born Sheerness 1813; died London
1900: see pages 1264, 1261
Russell, William Clark (1844–1911),
English novelist, 1264
Russia. Confederation of Soviet republics in Europe, Turkestan, the
Caucasus, and Siberia; area over
7,000,000 square miles; population
136,000,000; capital Moscow
(1,550,000). European Russia, in
which 127 millions of people live, was
up to 1914 the world's greatest producer of barley and rye, and was
second only to U.S.A. in its crops of
oats and wheat. It had more horses
than any other country, while its flocks second only to U.S.A. in its crops of onts and wheat. It had more horses than any other country, while its flocks of sheep were only exceeded by those of Australia and Argentina. In the far north lies the barren tundra region; between the Arctic Circle and the Volga is a vast forest belt; and the south and south-east consist respectively of fertile farming land and immense grassy steppes. Coal is mined south of Moscow and in the Donetz basin, and gold, platinum, coal, and copper are found in the Urals. Cereals, timber, hides, skins, furs, tallow, and dairy produce were important exports up to 1914. Important towns are Petrograd (1,070,000), Goessa (650,000), Karatov (240,000), Karatov (240,000), Karatov (240,000), Rostov (200,000), Astrakhan (200,000); and Ivanovno Voznesensk (170,000): see pages 5893, 6013

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Runeberg, Johan Ludvig, Finnish poet and writer of plays; born Jacobstad, Finland, 1804; died Borga, near
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Russian gossip, game, 1372
Russians. Divided into Great, Little, and White Russiars, this Slav nation is the most numerous next to the English. The vast majority are extremely unitelligent, lazy, and degraded peasants, but those who have settled in Siberia have shown more initiative. As a race they have assimilated the Mongol elements formerly existing in Eastern Europe
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Eastern Europe
Russians, Red: see Ruthenes
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appealing to Naomi, 1619

Ruth, story of Ruth and Naomi, 1617 appealing to Naomi, 1619 gleaning in field of Boaz, 1617, 1618 meeting with Boaz, 1620 Ruthenes. Also known as Ruthenians, Red Russians, or Rusniaks, this Slav people inhabit East and Central Galicia, North and West Bukovina, a part of Poland, and the valleys of the Carpathians in the east of Czecho-Slovakia. They are a very poor and backward peasant people Rutherford, Sir Ernest, English physical scientist, famous for his studies of radio-activity; born Nelson, New Zealand, 1871: see pages 6314, 6309 Rutlandshire. Smallest English county; area 152 square miles; population

area 152 square miles; population 18,000; capital Oakham Ruwenzori. African mountain range on the border of Uganda and the Belgian

the border of Uganda and the Belgian Congo. Mount Stanley here is 16,800 feet high: see page 6742 Ruysdael, Jacob, Dutch landscape painter and etcher; born Haarlem 1625; died there 1682; see page 1426 Mill on the Dyke, painting by, 1423 Ruysdael, Solomon, Dutch painter, 1426 Country Scene, painting by, 1427 Ruyter, De: see De Ruyter Ryde. Popular watering-place in the Isle of Wight. 11,500 Ryder, Albert, American painter; born New Bedford, Massachusetts, 1847; died Elmhurst, Long Island. 1917; see page 3287

deed Efficiency, Long Island, 1911; see page 3287

Rye. Picturesque Sussex town, once a flourishing Cinque Port, but now 2 miles from the sea. (4000)

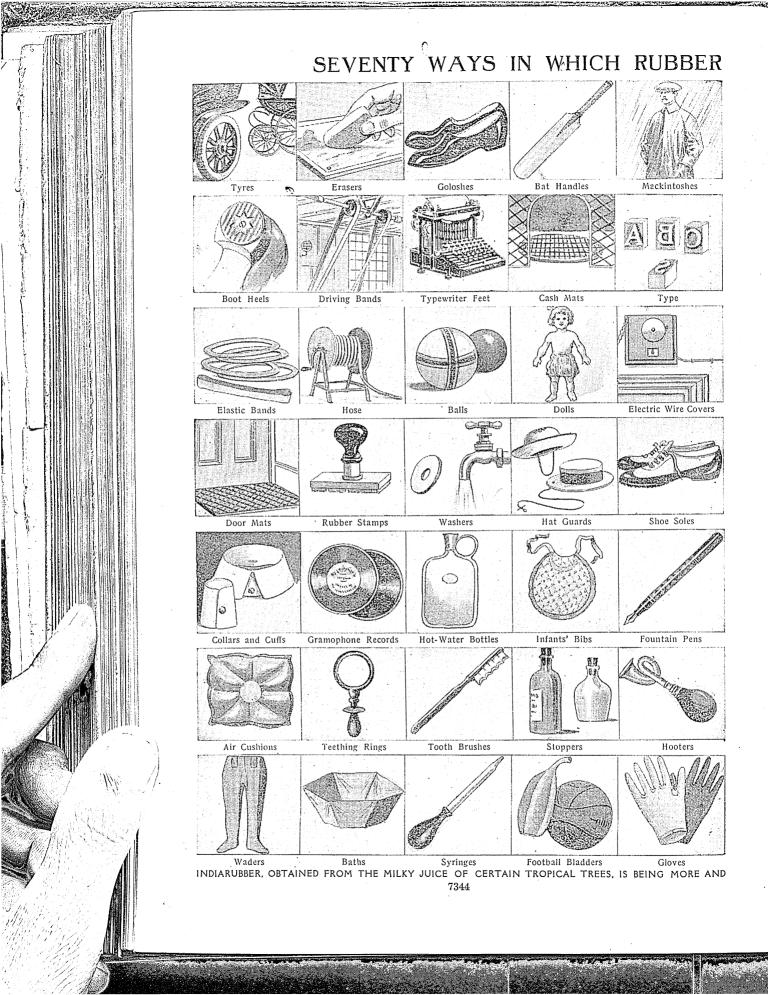
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Rue (expen), description, 1698

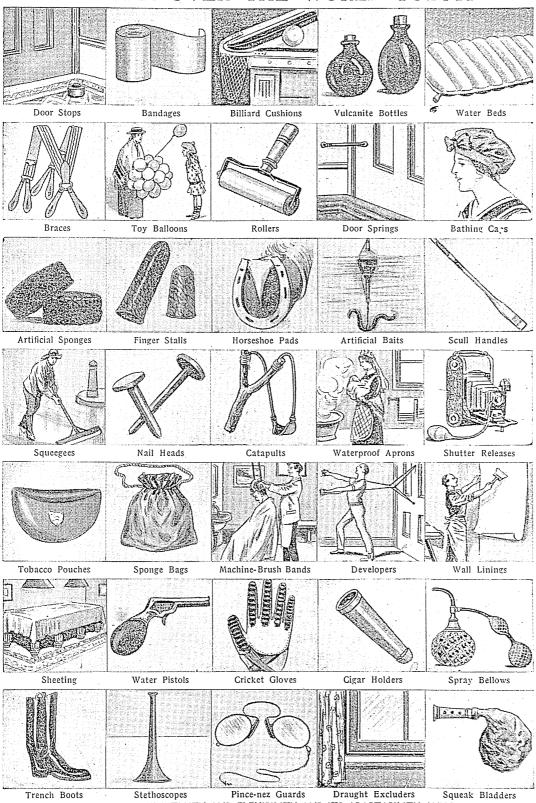
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Ryswick, Peace of (1697), treaty signed by England, France, Spain, Holland, and Germany, ending conspiracy be-tween Louis XIV and the Stuarts

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and so on by men on strike, with the

and so on by men on strike, with the object of injuring their employers and bringing them to terms. The word originally meant slice-making (sabot)

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ciple of the hydrometer for measuring the amount of sugar in a solution Saceoni, modern Italian architect, 6476 Sac-fish, of Globe-fish family, 5234 Sachet, how to make a muslin sachet for pot-pourri, 1623

sor pot-pourri, 1623
Sachs, Hans, German Renaissance poet
and writer of plays, the most famous of
the mastersingers; born Nuremberg
1494; died there 1576; see page 4697
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wool weight

wool weight
Sackville, Thomas, English poet; born
Buckhurst, Sussex, 1536; died London
1608; writer of Gorboduc, the first
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Sage of Chelsea. Name given to Thomas
Carlyle, who lived in Chelsea from 1834
till his death in 1881. His house is now
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Sahama. Lofty mountain in the Bolivian Andes. 22,350 feet Sahara. Immense desert of northern Africa, extending roughly from the Atlas Mountains to the Niger basin and from the Atlantic to the Nile. With the Libyan Desert, it covers about three and a half million square miles, forming an almost impassable barrier between the Mediterranean and the fertile regions of West and Central Africa. tile regions of West and Central Africa. Its surface varies excessively, being in

some places below sea level and in others 8000 feet above it; it contains, besides sand-dunes and oases, huge mountain plateaus, vast areas of rocks and pebbles, and even some comparatively fertile districts. In its centre are the Hoggar Mountains, which cover as great an area as the whole of the Alpine system. Politically the Sahara belongs chiefly to France, who in Southern Algeria has irrigated parts of it by means of artesian wells; but elsewhere the dryness is increasing: see pages 2126, 2370, 2998, 6742 influence on Europe's climate, 2375 camel in, 6741 hills of sand in, 2371

St. Cavids. City of Pembrokeshire, with a G. the cathedral dating from 1180. The see was founded by St. David, atron saint of Wales, in the 6th century. (1700) cathedral, 1460 st. Denis. Northern suburb of Paris, with flour and cotton mills, chemical and dye works, and manufactures of machinery. Here is a magnificent abbey, the burial place of most of the kings of Errance. 75,000 abbey church, 4173 tomb of Louis XII, 4173 tomb of Louis XII, 4173 in the 6th century. (1700) cathedral, 1460 st. Denis. Northern suburb of Paris, with flour and cotton mills, chemical and dye works, and manufactures of method and cotton mills, chemical and dye works, and manufactures of better the dryness is increasing: see pages 2126, 2370, 2998, 6742 influence on Europe's climate, 2375 camel in, 6741 hills of sand in, 2371

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4988
St. Elias, Mount. Alaskan volcano in the St. Elias range. 18,000 feet Saintes. French town on the Charente, with remains of a Roman triumphal arch and amphitheatre. Its former cathedral has a famous 16th-century portal. 20,000
St. Etienne. Important industrial town in the second largest French coalfield, 36 miles west of Lyons. It has a great iron and steel industry, besides manufacturing silk, velvet, and ribbons. 170,000: see page 4170
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floating down, 5358
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miles west of the Outer Hebrides. Its
80 inhabitants live chiefly by fishing
and fowling, and are visited by a
steamer two or three times a year
\$\foatstyle{st}. Kitis. British West Indian island
forming with Nevis and Anguilla a Leeward Island presidency; area 150
square miles; population 40,000:
capital Basseterre (8000). Cacao, coffee, tobacco, coconuts, and limes are
produced, though the interior is hilly
Brimstone Hill, 3436
\$\foatstyle{st}. Lawrence. Greatest Canadian river,
its basin containing the Great Lakes
and more than half the fresh water in
the world. Ocean steamers can go up
it 1000 miles to Montreal, and by using
the Welland Canal round Niagara small-

it 1000 miles to Montreal, and by using the Welland Canal round Niagara small-

the Welland Canal round Niagara smaller steamers can reach the head of Lake Superior, 2200 miles from the sea its exploration, 2073, 2380 scene on the river, 2499 ship passing through rapids, 2199 St. Lô. Ancient town of Normandy, France, the abbey of Ste. Croix having been founded here by Charlemagne in the print contury. It has some textile

the ninth century. It has some textile manufactures. 12,000

St. Louis. Capital of French Senegal, at the mouth of the Senegal river. 25,000

25,000 St. Louis. One of the greatest commercial centres in U.S.A., near the junction of the Missouri with the Mississippi, in Missouri. Finely built, it has three cathedrals and two universities,

sissippi, in Missouri. Thery ottue, it has three cathedrals and two universities, but is famous chiefly for its great manufacture of tobacco, over \$0,000,000 pounds of which are annually produced. Other industries include smelting, meathacking, publishing, flour milling, four milling, four milling, four sets and leather and clothing manufactures. \$00,000 : see page 3799 \$\frac{1}{2}\$\$ L. Louis Bridge. Built by James B. Eads, and opened in 1874, this massive bridge crosses the Mississippi just below tits junction with the Missouri. Triumphing over great engineering difficulties of flood, hurricane, and ice-floes, the engineers built the piers on rock 120 feet below high-water level. The main span is 520 feet with a clear height of 70 feet, and the two shore spans are each of

is 520 feet with a clear height of 70 feet, and the two shore spans are each of 502 feet. The width is 50 feet
St. Lucia. British West Indian island, largest of the Windward group; area 233 square miles: population 55,000: capital Castries (6000). Mountainous and thickly forested, it contains an active years but sware cases coffee active years but sware cases coffee.

active volcano, but sugar, cacao, coffee, and spices are grown flag in colour, 2407 view of Port Castries, 3556

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St. Moritz. Winter and health resort in the Swiss Engadine. (2000)

5t. Omer. Old town of northern France, with a considerable agricultural trade and some manufactures. It has a magnificent church, once a cathedral, and remains of a 7th-century abbey, 25,000

St. Patrick's Cathedral, Dublin, 3071

St. Patrick's Cross, origin, and adoption in Irish fiag, 2401

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St. Paul. Capital of Minnesota, U.S.A., on the Mississippi. Standing opposite Minneapolis, it is an important centre of the cattle and meat-packing trades, while its horse market is the largest in the country. 240,000

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Salamis, battle of. Sea fight which decided the fate of Greece and Europe in 480 B.C. Xerxes, who had captured Athens, sat on a high throne to watch his 1000 Persian ships fight the 360 Greek triremes under the Athenian Themistocles. The Persians were defeated, losing 200 vessels, against 40 lost by the Greeks. Xerxes returned to Asia in disgust, 890, 3128, 5157, 638 Sal ammoniac, in electric batteries, 483
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Salerno. Ancient seaport city of southern Italy with a beautiful 11th-century cathedral built by the Nor-mans. 50,000

mans. 50,000
Salford. Lancashire city adjoining
Manchester, from which it is separated
by the Irwell. It has a Roman Catholic
cathedral and cotton, chemical, and
engineering industries. 240,000
Salic Law. Law of succession disallowing females the right to occupy the
throne. The law is said to be based on
a passage in the code of the Salic
Franks of the 5th century
Salimeter or saliponeter, for measuring

Franks of the 5th century
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Salwen. Great river rising in Tibet and flowing through China and Burma into the Bay of Bengal. It sends down much rubber and teak from the Burmese highlands. 1800 miles
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Santarem. Ancient Portuguese cathedral city on the Tagus, with a Moorish castle. 10,000
San Thomé. Portuguese West African island with coffee, rubber, and important cocca plantations. Population 70,000: see pages 5402, 6750
Santiago. Ancient city of Galicia, Spain, with a fine Romanesque cathedral. Here is the shrine of St. James, a famous place of pilgrimage in the Middle Ages. 25,000
Santiago de Chile. Capital and largest city of Chile, 68 miles from its port of Valparaiso. One of the finest cities in South America, it has a historic cathedral and great commercial activity. 500,000 al and great commercial activity. 500,000

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Santos-Dumont, Alberto; Brazilian airman, the chief pioneer of the non-rigid airship; born São Paulo 1878: see pages 4447, 21
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Sarawak. British protectorate in Borneo, under a British rajah, C. V. Brooke; area 42,000 square miles; population 600,000; capital Kuching (30,000). Coffee, pepper, sago, rubber, camphor, and tapioca are produced, and coal, antimony, manganese, diamonds, and copper mined, while a timber trade is carried on with Hong Kong: see page 3420
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prairie province; area 252,000 square
miles; population 760,000; capital
Regina (35,000). Besides rearing lives
stock, it is the greatest wheat-growing regim (55,000). Desides feating live-stock, it is the greatest wheat-growing province in the Dominion, and its development has been enormously rapid. Saskatoon (25,000) is an educa-

rapid. Saskatoon (25,000) is tional centre arms, in colour, 4985 collegiate school, 6606 flag, in colour, 2407 harvesting oats in snow, 1697 Saskatoon. Agricultural and Saskaton. Agricultural and educa-tional centre in Saskatchewan, Canada, on the South Saskatchewan river. 25,000

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It is often called Soo. 21,000

Savery, Thomas, English engineer, the partner of Thomas Newcomen; born Shilstone, Devonshire, about 1650; died Westminster 1715; see page 2746

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Savona. Italian seaport city on the Gulf of Genoa, surrounded by orange groves. It has a 16th-century Renaissance cathedral and a brisk trade. sance ca 50,000

groves. It has a 10th-century kenalssance cathedral and a brisk trade. 50,000
Savonarola, Girolamo, Italian Dominican monk, the greatest religious and political reformer of Florence; born Ferrara 1452; executed Florence 1498: see pages 1389, 4796
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Savoy. Lying south of the Lake of Geneva, Savoy is the Alpine district of France, which contains Mont Blanc and the resorts of Chamonix and Aix-les-Bains. It was ceded to France by Italy in 1860: see page 4788
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Saxony, Most populous German State, lying between Prussia and Czecho-Slovakia. A little smaller than Yorkshire, it is a mining and manufacturing country, with important textile, paper, engineering, chemical, pottery, glass, and porcelain industries; coal, lead, inc, iron and cobalt are mined. Dresden, the capital (590,000), Leipzig (600,000), and Chemnitz (300,000) are the greatest towns
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Scilly Islands. Group of 36 islands and about 100 islets lying about 25 miles from Land's End, Cornwall. The climate is mild and equable, large quantities of fruit, flowers, and vegetables being grown for the English market, and steamers ply regularly between Hugh Town on St. Mary's and Penzance. 1800: see page 5618, Penzance. 1800: see page 5618, Scipio, Publius Cornelius Major, surnamed Africanus, Roman general; born about 237 B.C.; died 183; conquered Hannibal at Zama: see pages 4352, 6806, 4351
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Scissors, picture-story of manufacture,

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Scone. Ancient Pictish capital, and later coronation place of the Scottish kings, 2 miles from Perth. The stone of destiny was brought from its abbey to Westminster in 1296. (1600)
Scopas, Greek sculptor and architect, one of the builders of the Mausoleum at

Halicarnassus; born Paros about 400 B.C.: see pages 4272, 4277
Scope, the termination of the names of many scientific instruments, from a Greek verb meaning To see. Thus telescope, stathoscope
Scoresby, William, English Arctic explorer and student of terrestrial magnetism; born Whitby 1789; died Torquay 1857: see page 4804
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Scotch argus butterfly, with egg, caterpillar, and chrysalis, in colour, 6205
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Scot-free. Free from payment, scot being an Anglo-Saxon word meaning payment. To get off scot-free is to get out of a difficulty at no cost to one's self Scotland. Northern country of Great Britain; area 31,500 square miles; population 4,885,000; capital Edinburgh (420,000). It comprises the Orkney, Shetland, and Hebridean Islands, and has three distinct physical divisions—the Southern Uplands, Central Lowlands, and Northern Highlands, which contain the Grampians and Ben Nevis (4406 feet). The principal river is the Clyde, in the basin of which is one of the world's greatest industrial regions, with its centre in Glasgow (1,050,000). The Tay and Spey, however, are the longest rivers, while Edinburgh stands on the Forth, and the Tweed has a famous woollen industry. Of the many lakes Loch Lomond is the largest in Great Britain. Scotland has important coal, iron, fishing, ship-building, textile, jute, and distilling inof the many lakes Loch Lomond is the largest in Great Britain. Scotland has important coal, iron, fishing, shipbuilding, textile, jute, and distilling industries, but the Lowlands are the only thickly populated part. Among the largest towns are Dundee (170,000), Aberdeen (160,000), Paisley (85,000), and Greenock (80,000). There are 33 counties: 210, 213 arms added to English, 4984 Black Death in Scotland. 3637

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Seattle. Pacific seaport of U.S.A., in Washington State. Lumber, fish, and gold are among its exports, and it is the chief centre of trade with Alaska. Shipbuilding is important. 325,000: see page 3800
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Sebastian, St., Christian of Gallic birth who held high position in Roman army who held high position in Roman army and made many converts in Rome. He was ordered to be shot by Diocletian, and is always shown in pictures transfixed with arrows, although he is said to have survived and finally to have been beaten to death

to have survived and finally to have been beaten to death Henner's fine painting, 3168
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Sebastopol. Russian port and fortress in the Crimea, famous for its siege (1854–55). 80,000
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Sebenico. Cathedral city and port of Dalmatia, Yugo-Slavia. 10,000
Secondee. Railway terminus and port in the Gold Coast colony. (9000)
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Secret Service. Government department closely connected with the police, and concerned particularly with spying. From the nature of the work the details are not revealed to the public Secret societies, formed in Italy to put down oppression, 896

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Spain, with crumbling medieval walls
and narrow, picturesque streets. Here
are an aqueduct of Trajan and one of
the finest Gothic cathedrals in Spain.
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15,000: see page 5278
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Séguin, Marc, French discoverer of
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Seine. French river which flows past
Troyes, Paris, Rouen, and Havre, being
navigable up to Paris. Rising in the
plateau of Langres, it flows into the
English Channel; its drainage area
is 30,000 square miles, and the Aube,
Yonne, Marne, Oise, and Aisne are its
chief tributaries. 480 miles
meaning of name, 4169
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Seismoscope, simple form of seismometer for registering earthquakes
Sejin, Polish parliament, 6135
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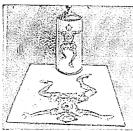
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aurry represented; hence the name select committee
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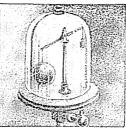
# TWENTY SCOPES



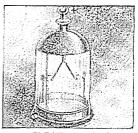
A toy giving a correct image of a distorted picture



device for indicating the direction of the wind



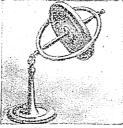
BAROSCOPE An instrument for indicating variations in density of air



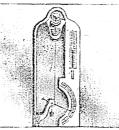
An apparatus for indicating the presence of electricity



A device for detecting the existence of an electric current



An instrument which illustrates the laws of rotation



An apparatus for indicating the moisture in the air



KALEIDOSCOPE n instrument which mirrors reveals patterns An



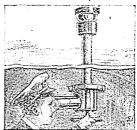
MAGNETOSCOPE A device for indicating the presence of magnetic force



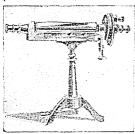
MICROSCOPE An instrument for revealing very minute objects



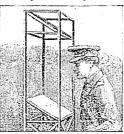
MUTOSCOPE
An apparatus showing a moving picture without a lantern



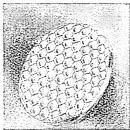
A submarine device for revealing objects above water



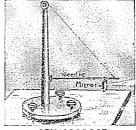
POLARISCOPE An instrument for examining objects in polarised light



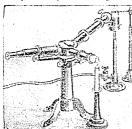
POLEMOSCOPE A device for seeing an object without looking directly at it



**POLYSCOPE** 



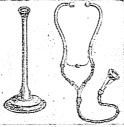
SEISMOSCOPE A lens convex one side with facets for multiplying objects for registering earthquakes



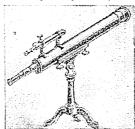
**SPECTROSCOPE** An instrument for analysing rays of light, as from a star



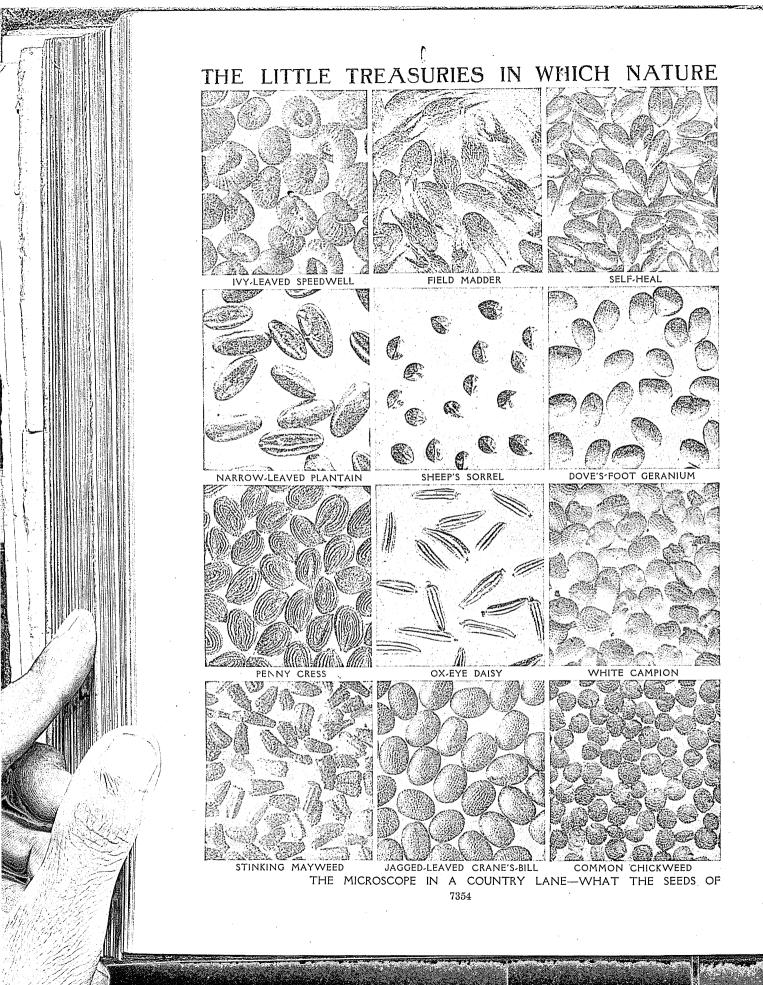
STEREOSCOPE A device for blending two flat pictures into one in relief

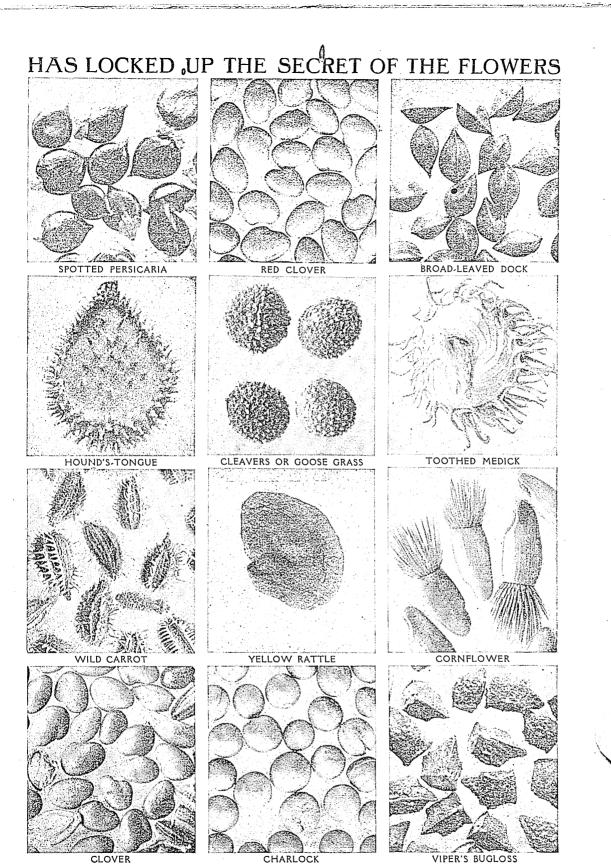


**STETHOSCOPE** A device for listening to the movement of heart and lungs



TELESCOPE An instrument for making distant objects more distinct





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Semuach, battle of, fought in 1386

on the road from vienna to Gratz.
3300 feet
Sempach, battle of, fought in 1386
between 1500 Swiss and the Austrians
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near Rome 65: see pages 1786, 5427, 5431
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Sherbrooke. Manufacturing town in Quebec province, Canada, making woollens and cottons. 25,000
Sherwood Forest. One of the ancient English forests, extending from Nottingham northwards to Worksop, and covering nearly 200 square miles. It is covering nearly 200 square miles. It is now little more than a woodland dis-

covering nearly 200 square miles. It is now little more than a woodland district, but it was a crown forest from the time of Henry II, later becoming famous as the retreat of Robin Hood She Stoops to Conquer, play by Oliver Goldsmith, 1980 Shetland Islands. Scottish group of 30 islands and 70 uninhabited islets in the North Atlantic. They cover 550 square miles and form a Scottish county, Lerwick on Mainland being the capital. Sheep, cattle, and Shetland ponies are bred, but the main industry is fishing. Population 26,000 origin of shawl, story, 5705 pony breeding, 216 pony, 1895 woman knitting shawl, 5705 She Who would Die for Her Friend, story, 3134 Shield (in engineering), Greathead, 6216, 6219, 6220 Shield-bug, insect, 5710 Shield fern, two species, 1798 male, life-story, 833 Shields, Frederick, Faith, picture, 1111 Isaiah, painting by, 2979 Shiite, or Shiah, Moslem seet, 6385 Shilling, what we can do with, 5389 Shillito, Edward: for poem see Poetry Index Shiels, Palestine, ruins, 3466

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		Tr		World's								_	
Name			N	ationality		1.	ength	in		eadth	m		egistered
							feet			in feet			Tonnage
Majestic				British			$915\frac{1}{2}$			100			56,551
Leviathan				U.S.A.			$907\frac{1}{2}$			100ት	٠.,		59,957
Berengaria				British			883			98			52,226
Olympic				British			8523			$92\frac{1}{2}$			46,439
Aquitania				British			8683			97			45,647
Mauretania				British			762			88			30,696
Homeric				British			751			$83\frac{1}{4}$			34,356
Columbus				German		٠.	750			83			35,000
Paris				French			$735\frac{1}{3}$			851			34,569
Adriatic				British			709			$75\frac{1}{2}$			24,541
Baltic				British			709			$75\frac{1}{2}$			23,884
George Wa	shins	gton		U.S.A.			699			78			23,788
**	`			French			689			$75\frac{1}{2}$			23,666
Empress of	Sco	tland	1	British			$677\frac{1}{2}$			771			25,037
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Ship-worm: see Teredo Shiraz, ancient walled city of southern Persia, once one of the chief centres of the Zoroastrian religion. (50,000):

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Shropshire. English western county; area 1346 square miles; population 243,000; capital Shrewsbury. Here are the Severn, the Wrekin, the Clee Hills, and the towns of Wellington, Ludlow, Oswestry, and Whitchurch. Coal is mined in the cast
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Shylock, character in Shakespeare's Merchant of Venice, 6041 painting by Sir J. Gilbert, 1101 Siam, kingdom of south-east Asia; area 195,000 square miles; population 9,250,000; capital Bangkok (550,000). Rice is the staple crop, and the greatest exports are rice, teak, and tin, Burmese and Chinese doing most of the manual labour. In the present century the country has made great progress, education having been greatly improved and much of the interior opened; a university has been founded at Bangkok. The people are mainly Siamese kok. The people are mainly Siamese Buddhists, but there are a million Moslem Malays, and nearly two million

Chinese

Moslem Malays, and nearly two million Chinese
Buddha and his pupils, Bangkok, 2029
flags, in colour, 4012
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Siamese, The only branch of the numerous Tai-shan race of Northern Mongols
that has succeeded in forming a nation.
Their empire formerly extended over
Cambodia, parts of Burma, and the
Malay Peninsula; today it is a small
State. The people are great gamblers
and have no sense of personal dignity,
largely owing to a system of slavery into
which noble and peasant alike until
recent years sold themselves. The
upper classes now greatly encourage
education and modern progress
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education and modern progress Siamese flag, puzzle, and picture, 5314, 5439
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Siberia. Immense Russian territory in northern Asia, stretching from the Urals to the Sea of Japan. Nearly 40 times as large as the British Isles, it covers 4,830,000 square miles, while the population only amounts to some 10,000,000, mainly immigrants from Russia. Turkish, Ugrian, and Mongolian tribesmen number about 700,000. In the east Siberla is mainly a tableland, with valuable deposits of gold, silver, copper, lead, iron, and coal among the mountains; the west is largely a fertile corn-growing plain, with comparatively dense population in places. The Trans-Siberian Railway stretches 5700 miles from the Atlantic to the Pacific, from Petrograd to Vladivostock, and steamers ply during the summer on the Obi, Yenesei, Lena, and Amur rivers. The north generally is covered with forests and swamps, in which a sparse population of tribesmen live by fishing and hunting; in the far north are 450,000, square miles of inhospitable and bitterly cold tundra, temperatures as low as 75° and 85° below zero having been registered at Verkhoyansk and Yakutsk. The chief towns are Tobolsk, Omsk, Tomsk, Irkutsk, Chita, Blagoveschensk, Khabarovsk, Nikolaievsk and Petropaulovsk almost all in the south: 6013
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Siberian wild dog, 536
Siberian wild, 536
Siberian wild for the first four centuries of the Christian Era modelled on the pagan Sibylline Books as propaganda for Christianity
Sic. Latin for thus. When used within brackets in English it implies incredulity or contempt in regard to the statement which it follows
Sicilians. Originating from a race of

the statement which it follows Sicilians. Originating from a race of Mediterranean type coming from N. Africa, the Sicilians of today are a very mixed people, Greeks, Phoenicians, Romans, Vandals, Normans, Arabs, French, and Spaniards having settled in this island

Sicilian Vespers, massacre on Easter Monday, March 30, 1282, of 8000 Frenchmen in Sicily by natives of the

Monday, March 30, 1282, of 8000
Frenchmen in Sicily by natives of the island, 4797
Sicily. Largest island of Italy and the Mediterranean; area 9935 square miles; population 4,000,000; capital Palermo. The chief industries are fruit-growing and the sardine and tunny fisheries, though Mount Etna is the chief source of the world's sulphur supply. Palermo, Messina, Catania, Trapani, and Marsala are important ports; Syracuse, and Girgenti abound in antiquities. Occupied in turn by Greeks, Carthaginians, Romans, Franks, Goths, Byzantines, Saracens, Normans, Angovins, and Aragonese, Sicily has had the most eventful history of any part of Europe: 4784
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4696
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Siena. Famous and beautiful city of Tuscany, having been one of the carliest centres of Italian Renaissance art. It is situated on three hills, the art. It is situated on three hills, the streets being winding and picturesque, and its business is confined to strawplaiting and trade in oil and wine. The 13th-century Gothic cathedral contains Donatello's statue in bronze of John the Baptist. 45,000 Cathedral that all the artists of the town helped to set up, 5993 Ghiberti's font in the Baptistery, 4522 Niccola's markle publit in the Baptistery, 4521

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horn near Siedlec 1846; died 1916: see page 6136
Sierra Leone. British West African colony; area 31,000 square miles; population 1,450,000; capital Freetown (44,000). Except in the highlands it is unsuitable for European colonisation, but palm kernels and oil, kolon nuts, and ginger are exported: 3316 reed slaves settled in, 3244, 3316
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Signs, how to speak by, and pictures, 5810

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MATHEMATICAL AND OTHER SIGNS + plus, the sign of addition minus, the sign of substruction the sign of multiplication the sign of division is to as because therefore infinity square root cube root fourth root, and so on per cent is unequal to is greater than is not greater than is less then is not less than is parallel to is not parallel to is perpendicular to ± equiateral

∠ angle

∠ sangles

∟ right angle

≚ equiangular

± equality △ triangle triangle rectangle sol parallelopiped
 circle
 circumference
 tosemicircle arc at \$ dollars # dollars
# dollars
# E pounds Egyptian
# T pounds Turkish
# numbered numbered male female sun new moon first quarter of moon full moon last quarter of moon Planet @ordEarth ¥ Mercury P Venus o Mars 24 Jupiter Saturn of conjunction of opposition A ascending node V descending node ROMAN NUMERALS

I1	C-100
II-2	CC-200
III—3	CCC-300
IV4	CD-400
V5	D500
VI6	IO-500
VII—7	DC-600
VIII—8	InC-600
IX9	DCC-700
X-10	M-1000
XI—11	CIO-1000
XII—12	MC-1100
XIII—13	MD-1500
XIV14	MM-2000
XV—15	CT 1CID—2000
XVI16	· 1ICto=2000
XVII —17	1141-2000
XVIII—18	_
XIX—19	$\overline{V}$ 5000
XX20	Ipp—5000
XXX—30	WF 4600
XL-40	VI6000
L-50	$\overline{X}$ —10,000
LX-60	CCIDO-10,000
LXX-70	1000-50,000
LXXX—80	1700 - 66,000
XC-90	$\overline{C}$ 100,000
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term, from the Latin sine cura, without
car or anxiety, is especially applied to

care or anxiety, is especially applied to a benefice without the cure of souls Sine die, is Latin for Without day; in-

definitely

Sine qua non, Latin phrase meaning Without which nothing; hence, in English, an indispensable condition

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Water. It is 15 miles long, and from
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wide: at its entrance stands Hurst
Castle, built in the 16th century as a
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Soleure. Swiss cathedral city, manufacturing cottons and clocks. 15,000
Solferino, battle of. Defeat of the
Austrians in Italy in 1859 by Napoleon
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The Awakening, 2676

The Awakening, 2676

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Solway Firth. Deep arm of the Irish Sea between Cumberland, Dumfries-shire, and Kirkcudbrightshire. It resea between Cumberand, Dumrnesshire, and Kirkcundbrightshire. It receives the Nith, Annan, Esk, and Eden Somaliland. East African territory comprising British, French, and Italian Somaliland. French Somaliland exports the coffee and ivory of Abyssinia through Jibuti and Obock, and has an area of 5800 square miles and a population of 210,000; Italian Somaliland, capital Magadoxo, covers about 140,000 square miles, and is mainly pastoral, having only 650,000 anhabitants: see page 3315 well near Jibuti. 6760 Somaliland, British. Protectorate on the south shore of the Gulf of Aden; area 68,000 square miles; population 300,000; capital Berbera. An arid steppe in the interior, it is peopled by warlike Moslem tribes, mostly pastoral. Livestock, skins, and gums are exported flor in colour 2408

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Somerset. Bnglish western county; area 1615 square miles; population 470,000; capital Taunton. Here are the Mendip Hills, which contain a coal field round Radstock, the Quantocks, and part of Exmoor; but the centre is low-lying and marshy. The chief industries are agriculture, dairying, sheep and cattle raising, and the growing of cider apples. Among the towns are Bath, Weston-super-Mare, Yeovil, Bridgwater, Wells, and Glastonbury Triassic remains, 1384
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Sound, The. Easternmost and most important of the straits connecting the Baltic with the Kattegat and North Sea. 70 miles long and upwards of three miles broad, it has on its shores the Danish capital, Copenhagen, and Malmö and Helsingborg, in Sweden: see page 5768
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South-West Africa Protectorate; area 795,000 square miles; population 7,200,000 (1,550,000 whites); capital Pretoria, Transvaal. It was formed in 1910: see pages 3183, 3183 architecture a blending of styles, 6474 in literature, 4333, 4336 part in Great War, 3186 products given to British Empire, 1943 Pictures of South Africa arms in colour, 4985 British entry into Cape Town, 1953 Durban harbour, 3557 erecting shop on Natal railways, 3182 flags in colour, 2405, 2408 native scenes, 3183, 3190–3 native types, 1945 Parliament House, Cape Town, 6606 pictures of towns, 3180 railway engine, 3510 Rhodes Memorial at Rondebosch, 3195 Rhodes's grave, 3195

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Southampton. Port of Hampshire, at the head of Southampton Water. 79
miles from London, it is a great port for transatlantic liners, and has large engineering industries. Docks cover 300 acres. 165,000

The Mayflower and Speedwell set out on

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arms in colour, 4991
Bar Gate, 1593
South Australia. Australian central state; area 380,000 square miles; population 510,000; capital Adelaide (265,000). Two-thirds of it are farmed or grazed, wheat being much the largest crop, but fruit-growing is important. Sheep numbered over six millions in 1921. Copper is a valuable export, while many other minerals are found. South Australia has a fine climate, and is one of the richest countries per head of population: 2572
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Waterfall Gully, near Adelaide, 2571
South Carolina. American cotton State bordering the Atlantic; area 31,000 square miles; population 1,700,000; capital Columbia. Besides cotton, much plosphate rock is exported, Charleston, founded in 1680, being the chief port.

founded in 1680, being the chief port. Abbreviation S. C. State flag in colour, 2410
South Dakota. American northern cattle-raising State; area 78,000 square miles; population 650,000; capital À

Here are several Indian reservations. Abbreviation S. Dak. State flag in colour, 2411

Southdown sheep, characteristics, 1284 South Eastern & Chatham Railway, now absorbed in Southern Railway

Southend-on-Sea. Popular seaside resort in Essex, at the mouth of the Thames. It includes Westeliff, Thorograms, Bay, and Leigh-on-Sea. 105,000

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Southport. Laneashire watering-place at the mouth of the Ribble. 77,000
South Sea Bubble (1720), scheme of Sir John Blount, a director of the South Sea Company, to pay off the English national debt. New stock was raised, rose rapidly, and then fell with a crash, bringing ruin to many, 1327
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South Shetlands. Uninhabited island group in the South Atlantic, under the Falkland Islands. The seal fishery is important
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mg enemicals and sinjs. 120,000 South Victoria Land, Antarctica, 6550 Southwark. Ancient London borough with Anglican and Roman Catholic cathedrals. 185,000 architecture of Anglican cathedral, 5871 vious 1917, 5891

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Southwell. Ancient Nottinghamshire cathedral city, the splendid minster dating from the 12th century. (3200) south transept door, 5877

South-West Africa. Formerly a German colony, but now a protectorate of the Union of South Africa; area 322,000 square miles; population 210,000 (20,000 whites); capital Windhoek (3500 whites). Most of it suffers from insufficient rainfall, stock-raising being the staple industry, but there are large copper mines at Tsumeb and diamond fields at Lüderitz Bay. Walfisch Bay is the only good port: 3188

Southwold. Watering-place and fishing port in Sulfolk. (3400)

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Spade the gardener, game, 5687
Spain. Kingdom of south-west Europe; area 195,000 square miles; population 21,700,000; capital Madrid (750,000). It consists largely of a high tableland, the western part of which is generally colder and wetter than the east, and is traversed from east to west by five large mountain ranges. The mineral wealth is very considerable, copper colder and wetter than the cast, and is traversed from east to west by five large mountain ranges. The mineral wealth is very considerable, copper being found in the Rio Tinto region; quicksilver at Almaden in Castile; lead at Linares in Andalusia; salt in Catalonia; iron in Biscaya; and coal in Asturias. Catalonia is the chief industrial region, manufacturing corks and cotton; the east produces great quantities of fruit, cereals, and wine; while sheep and pigs are bred in Estremadura. The largest towns are Barcelona (725,000), Valencia (250,000), Seville (200,000), Malaga (150,000), Saragossa (140,000), Murcia (140,000), Bilbao (110,000), Granada (110,000), and Cartagena (100,000); see 5269 architecture; see Spanish architecture Armada defeated, 1084, 3880 art: see Spanish art colonies in America break away, 5276 history told by Prescott, 4333 literature: see Spanish literature Moorish occupation, 687 Netherlands under Spain, 3880, 5527 Pictures of Spain flags in colour, 4012 industrial life, 5271, 5273

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Spectacles, used in 13th century, 1883
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Spectrograph, spectroscope in which a
sensitive photographic plate takes the
place of the cycpiece

place of the eyepiece Spectro-heliograph, special kind of spectrograph used in photographing the Sun

Spectrometer, for measuring the angular deviation of light rays as they pass through a prism

through a prism
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Horse trotting		9		4.4
Horse cantering		9		4.4
Horse galloping		15		7.3
Racehorse		30		14.5
Greyhound		-56		27.3
Express train		60		29.3
Carrier pigeon	٠.	60		29.3
Eagle		69		33.75
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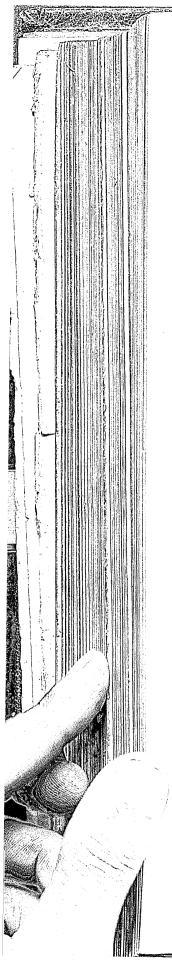
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Sudan. Vast Anglo-Egyptian territory in north-east Airica; area 1,000,000
square miles; population 4,000,000; capital Khartoum (25,000). Though it contains the Nubian and much of the Libyan Desert, it has much fertile land in the Nile valley and the cultivated in the Nile valley, and the cultivated area is being greatly increased by irrigation. Cotton-growing especially is making great progress, while cattle-raising and the cultivation of millet are important. Exports include the world's chief supplies of gum arabic and ivory,

miporant. Exports include the world's chief supplies of gum arabic and ivory, with sesame, senna, ground-nuts, dates, hides, gold, and cattle. Omdurman (60,000) El Obeid, and Kassala are important towns; Suakin and Port Sudan are ports. The name Sudan is used also for a large French West African district, lying south of the Sahara, 3315 revolts from Egypt, 6862 Fictures of the Sudan cotton-picking scene, 2561 lishing village, 3320 gum arabic trees, 2941 Khartoum, railway bridge over the Nile, 3321 Khartoum railway station, 3320 natives by their huts, 3320 Omdurman grain market, 3313 Port Sudan, quayside, 3321

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Sudanese. The name of the Negro races who inhabit East Central, and Western Sudan, and most of Nigeria, Senegal, and Sierra Leone. While Berber-negro and Arab-negro half-castes are numerous, the main people are typical Negroes. Among the chief races are the Mandingans, Hausas, Mabas, Nubians, Serahs, Krus, and Dinkas Sudan, French, mosque at Djenne, 6757 Negro boy, 6747

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Superheater, at gasworks, 3450
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Superior, Lake. Greatest fresh-water
lake in the world, being 380 miles long, 160 miles broad, 1000 feet deep, and 31,800 square miles in extent. The
westernmost of the Great Lakes of
North America, it lies between Ontario.
Canada, and the American states of
Michigan, Minnesota, and Wisconsin; 200 rivers flow into it, and its normal
discharge is 75,000 cubic feet a second.
It is connected with Lake Huron by the
Sault Ste. Marie cauals, which avoid
a series of rapids, navigation being
possible for all except four months in
the year, though it is never complerely
frozen over. Immense quantities of
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and Fort William in Canada and
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Surmullet, fish, in colour, facing 5100 Surrey, Earl of (Henry Howard), for poems see Poetry Index Surrey. English southern county; area 722 square miles; population 930,000; capital Guildford. Here are Richmond, Kingston-on-Thames, Rei-gate, Godalming, Epsom, Dorking, Croydon, and Wimbledon

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Susquenanna River, ordige at Rockville, 3803
Sussex. English southern county;
area 1457 square miles; population
730,000; capital Lewes. It contains
the South Downs and part of the
Weald, and is noted for its seaside
resorts, including Bognor, Worthing,
Brighton, Eastbourne, Bexhill, and
Hastings. Chichester, Midhurst, Arundel, Horsham, Winchelsea, and Rye
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Sutherlandshire. Scottish northern
county; area 2028 square miles;
population 18,000; capital Dornoch,
Mountainous and studded with lochs,
it consists largely of grouse moors and
deer forests

it consists largely of grouse moors and deer forests
Sutlej. Tributary of the Indus in the Punjab. \* 900 miles
Suttee, Indian custom, abolished in 1829, see page 2948
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(7100)

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Swan song, last production of a poet; so called because dying swans were supposed to sing
Swaziland. South African native territory under British administration; area 6680 square miles; population Swansea.

tory under British administration; area 6680 square miles; population 120,000. Stock-raising and the cultivation of maize are carried on, 3312 Sweat gland, its importance, 1432 greatly magnified, 1431

Sweating sickness, the, epidemic which first appeared in England in 1485 and carried off 20,000 persons in London alone. Later outbreaks occurred in England and also on the Continent Sweden Kingdom of northern Europa.

in England and also on the Continent Sweden. Kingdom of northern Europe; area 173,000 square miles; population 6,000,000; capital Stockholm (425,000). Though a land of rivers, lakes, and forests, it has considerable agricultural resources, to has considerance agricultural resources, oats, rye, wheat, and barley being grown and dairying carried on. The timber trade is very important, employing over 11,000 saw mills, while the famous Dannemora mines produce the famous Dannemora mines produce one-twentieth of the world's supply of magnetic iron. Paper, cellulose, machinery, glass, ships, and matches are manufactured. The largest towns are Gothenburg (230,000), Malmö (120,000), Norrköping, Helsingborg, Karlskrona, Jonköping, Gefle, Upsala, and Lund. The Swedish educational system is the best in Europe: 5772 Aaland Islands dispute. 6479 art of Sweden, 3393 history, 5765 literature, 4942

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works. 55,000: see page 340

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Switchboard, for control of electricity, 611, 1353
Swithin, St., Wessex monk who became Bishop of Winchester in 836, and had great influence over church and state matters of the time. His remains were moved into Winchester Cathedral in 971, and miracles are said to have been performed at his shrine. No reason is known for the popular idea that St. Swithin's Day influences

No reason is known for the popular idea that St. Swithin's Day inluences the weather Switzerland. European federal republic of 22 cantons; area, 16,000 square miles; population 3,900,000; capital Berne (110,000). The most mountainous country of Europe, it contains much of the Alpine system, though parts of the north and west are comparatively flat. The Rhine and Rhône have their sources here, while there are about 470 glaciers and many large lakes; the Swiss resorts are the best in the world for winter sports, notably in the Bernese Oberland and Engadine. The chief industries are agriculture and dairying and the manufacture of cottons, laces, silk watches, chocolate, cheese, and condensed milk. Zurich (210,000), Basle (140,000), Geneva (140,000), Lausanne, St. Gallen, Fribourg, and Lucerne are among the largest towns. Of 60 per cent. of the people the language is German, of 21 per cent. French, and of 9 per cent. Italian; 56 per cent. Catholics, 4665 art of Switzerland, 3398

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syenophant calosoma, in colour, 6335 Sydney. Largost city and scaport of Australia, capital of New South Wales. The great Pacific shipping centre of the Commonwealth, it stands on the natural harbour of Port Jackson, one of the finest in the world; it is well laid out, and has two cathedrals and a university, and a National Park of

36,000 acres. There are clothing, leather, pottery, glass, furniture, to-bacco, and engineering industries, Famous for its splendid climate, Sydney is the oldest Australian city, having been founded in 1788. 950,000 Bank of Australia, 6608 harbour, 2579, 3558 quays, 2443, 2578 wool train at harbour, 805 Sydney. Centre of the coal, iron, and

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interesting ancient remains. 45,000 catacombs, 444
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rising in the Tien Shan and flowing into Lake Aral. 1500 miles
Syria. French mandatory State in Western Asia: area 60,000 square miles; population 3,000,000. An ancient centre of civilisation, it has passed in turn to the Hittites, Egyptians, Assyrians, Persians, Alexander the Great, the Scleucids, Rome, the Byzantine Empire, the Saracens, and the Turks, while the Phoenicians once held Tyre and other coast cities. It is now mainly an agricultural country. the Turks, while the Phoenicians once held Tyre and other coast cities. It is now mainly an agricultural country, producing wheat, barley, millet maize, oats, rye, fruit, silk, wool, and tobacco. Beirut, Alexandretta, Tripoli, and Latakia are the chief ports, and Aleppo, Damascus, Homs, and Hamah the chief inland towns, 5029, 6268 ancient art, 443, 448 ancient art, 443, 448 ancient name, 4994 history revealed by excavation, 6984 rise of the kingdom, 890 flag, in colour, 4012 Roman temple of Baal, 5511 scenes, 6261, 6263, 6269 temple of Bacchus at Baalbek, 5512 women with distaffs, 233 Maps of Syria animal life of the country, 6399 general and political, 6400 plants, industries and physical features, 6398

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who dwell in the Philippine Islands of Luzon, Mindoro, Lubang, and Marinduque. They are very erratic people of Malayan origin Tagore, Rabindranath, Indian poet: born in Bengal 1871: see 5674
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Tagus. River of Spain and Portugal, rising in eastern Spain and flowing into the Atlantic. It passes Aranjuez, Toledo, Talavera, and Alcantara in Spain, and Abrantes, Santarem, and Lisbon in Portugal. 510 miles: see pages 5270, 5402
Tahiti, largest of the French Society Islands in the Pacific: 2380
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Tai. People of Southern Mongol stock who dwell in Indo-China. They are known as Shans by the Burmese, and Laos by the Siamese. They are very numerous in Southern China. They have Caucasic blood in their veins as evidenced by their having a finer physique than the Chinese. Their colour is lighter, their features more regular, and their expression more intelligent
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Tanaga, terminus of the Usambara
Railway, Tanganyika Territory, and
port of a large pastoral region. 20,000
Tanganyika, Lake. Second largest
African lake, on the borders of Tanganyika Territory, Northern Rhodesia,
and the Belgian Congo. 12,700 square
miles in extent, it is the longest lake,
in the world, measuring 400 miles;
from 30 to 45 miles broad, it is over
1000 feet deep. Burton and Speke discovered it in 1858: see 3004, 3006
Tanganyika Territory. Formerly German East Africa, British mandatory
State; area 385,000 square miles;
population 4,100,000; capital Dar-esSalaam. It is still largely undeveloped,
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for coffee, coconut, caoutchoue, sugar,
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Tara. Village in Co. Meath which was
for centuries capital of the early Irish
kings. On the Hill of Tara stood the
royal palace, and there are remains of
earthworks and nonuments: 3062

Taranto. One of the chief ports of Southern Italy, with an important naval arsenal. It has a cathedral and an old Byzantine aqueduct. 50.000
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Tock? 4520

Tarquin, Brutus drives out Roman tyrant, 4350

Tarragona. Spanish Mediterranean port, with a 12th-century cathedral and many Roman remains. These include an amphitheatre, an aqueduct, and the Tower of the Scipios. 25,000

Roman aqueduct, 5284

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Tashkent. Capital of Russian Turkestan,
among orchards and gardens. 280,000
Task, The, Cowper's poem, published
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Tasman, Abel Jansen, Dutch navigator;
born probably Hoorn about 1602; died
Batavia, Java, 1659; discovered Tasmania in 1642: see 2379, 2693, 2377
Tasman Glacier, New Zealand, 2249,
2698, 2703
Tasmania. Australian island State;
area 26,000 square miles; population
220,000; capital Hobart (55,000).
Generally hilly, with pine, eucalyptus,
and acacia forests, it has a lovely
climate, and is one of the richest parts
of Australia. Cereals and great
quantities of fruit are grown, and in
1921 there were over 1,500,000 sheep
and 215,000 cattle. Mineral wealth
includes copper, tin, silver-lead, zine,
coal, and osmiridium. Launceston
(30,000) is the chief inland town
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Taurus. Mountain range dividing Asia Minor from Syria. It is traversed by the Cilician Gates pass. 11,500 feet: see page 5679

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Channel near Barnstaple. 50 miles
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Ben Lui and flowing through Loch Tay
and the Firth of Tay into the North
Sea. It drains 2400 square miles, the
Garry, Tummel, and Isla being its
tributaries. Perth stands on the river
and Dundee on the firth. 118 miles
Tay Bridge. Two miles long, with 74
spans, this bridge near Dundee carries
two railway tracks: 548, 555
Tay, Loch. Largest lake in Perthshire,
covering 10 square miles
Taylor, Bayard, American writer: born

covering 10 square miles
Taylor, Bayard, American writer: born
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Kyrkerud, Wermland, 1782; died
Wexio 1846: see pages 4942, 4937
Tegueigalpa. Capital of Honduras, near
gold, silver, and marble mines. 25,000
Teguexin: see Teju lizard
Teheran. Capital of Persia, in a fertile
plain about 70 miles south of the Caspian. It is surrounded by walls, and
manufactures carpets and silk. 220,000:
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Teignmouth. Port and watering-place
in South Devon. 11,000
Teixeira, Pedro, Portuguese explorer
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died Pará, Brazil, 1640
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Telautograph, adaptation of the telegraph by means of which writings or
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simile
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Country				Miles
Argentina				54,812
Australia .				64.811
Austria				8377
Belgium				5206
Bolivia		٠.		5114
Brazil				26,037
Bulgaria				3701
Canada				52,664
Chile			٠.	18,181 42,097
China Colombia			٠.	42,097
Colombia				12,117
Costa Rica				1533
Cuba Czecho-Slovak				5065
Czecho-Slovak	ia		٠.	$\frac{13,890}{2269}$
Denmark			٠.	2269
Ecuador				4370
Egypt				10,869.
Finland			٠.,	10,517
France				120.738
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maia. British				87,614
Italy Japan				35,901
Japan				27.629
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Netherlands				5218
New Zealand				13,813
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Panama				1004
Paraguay Persia				2050
Persia	• • •			6312
Peru	• • •			9321
Peru Portugal				4671
Rumania			• •	5944
Russia				$\substack{153,168 \\ 2357}$
Salvador	• •	• •	• •	2357
San Domingo	• •		• •	1071
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South Africa	• •	• •	• •	4532 15,951 31,285
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Spain	• •		• •	13,819
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Turkey United Kingde United States	010	• •	• •	81 000
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Islands, covering 780 square miles. Of
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capital (65,000), exports much fruit.
Population 180,000
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square miles: population 2,350,060; capital Nashville (120,000). There are iron, coal, and agricultural industries, and Memphis (165,000) is a busy river port. Abbreviation Tenn. State flag, in colour, 2410
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Tête-à-tête, French for A company of two; literally, head to head Tethys, mythological goddess, 3529

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Teutoburger Wald, battle of, annihilation of three Roman legions under Varus by the German hero Arminius, or Hermann, in A.D. 9. Arminius ambushed the legions on the march in difficult forest, country, and hardly a Roman escaped. Varus, give me back my legions! exclaimed Caesar Augustus, on hearing of the disaster: see page 4310

Teutons, the people of Northern Europe speaking the Teutonic language. The race of these people is a mixed one, though the Nordic type with fair hair, long head and face, blue eyes, and tall stature predominate. The Alpine and Mediterranean types are to be found in many Teutons, 4291

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Stoir. Once completely an island, it is believed to have been the landing-place of the Jutes under Hengist and Horsa. It is famous for its watering-places

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the Mediterranean, with a fine harbour
and 240 acres of docks. There is a
considerable shipbuilding industry.
110,000: see pages 1453, 4645
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Toulouse. French cathedral city on the
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Touraine. Old French province, in the
valley of the Loire. Toues, the capital
(75,000), Amboise, and Chinon are the
most famous towns
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Tournai. Ancient city of Flanders,
making linen, hosiery, and Brussels
carpets. Its five-towered Romanesque
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on the Loire. An important railway
rentre, it has iron, steel, leather, and
ingineering industries; there are a
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Tractor aeroplane, meaning of, 4578
Trade, general term for buying and selling, or commerce of any kind, whether applied to the operations of individuals or to the total exchange of goods between one country and another. The word trade originally meant a trodden way, while commerce by derivation implies bargaining English trade before the time of shops,

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against 33 French and Spanish ships
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reigned 98-117; greatly extended the
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nation's wealth increased by organised transport, 5885 rivers as carriers, 2494 map of world transport, 94 Transporter Bridge, Middlesbrough, 556 Transvaal. South African province lying between the Vaal and Limpopo; area 110,000 square miles; population 2,100,000 (550,000 whites); capital Pretoria (75,000). A grassy and healthy tableland, it has large agricultural and tableland, it has large agricultural and stock-raising industries, but by far the most important product is gold from the Witswatersrand, which has already yielded £500,000,000 worth of the metal. Coal, diamonds, copper and tin are also found, Johannesburg (288,000) being the great centre of the mining industry. First settled by Boer farmers from the Cape, the Transvanl was an independent republic from 1852 to 1902: see pages 3188, 5718 arms, in colour, 4985 views of Johannesburg, 3189 views of Pretoria, 3189, 6606 See also Rand

See also Rand Transylvania. Mountainous plateau in Transylvania. Mountainous plateau in eastern Europe, formerly part of Hungary, but since 1918 a Rumanian province. Over a third of its area is covered by forests, but the soil is generally fertile, and about half the country consists of either cultivated or pastoral lands. Salt, gold, silver, copper, quicksilver, iron, and lead are found, and mineral springs abound. Sibiu (Hermannstadt), Cluj (Kolozsvar), and Brasso (Kronstadt) are the chief towns, 4550, 5150
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with a Romanesque cathedral and
many handsome buildings. It manufactures silk, pottery, and sugar, and
has a brisk transit trade. 30,000
Trent, Council of (1545 to 1563), controlled by Italians and Spaniards, it
fixed the Roman Catholic creeds and
condemned the Reformation. Its
decrees are called Tridentine decrees,
from the Latin name of Trent, 4796
Trent, River. Important river of midland England, flowing through Staffordshire, Derbyshire, Nottinghamshire,
and Lincolnshire into the Humber.
Navigable for barges up to Burton-onTrent, it is 180 miles long, with a drain
age area of 4000 square miles; it connects with the Trent and Mersey and
Grand Junction Canals. Its chief tributaries are the Sow, Tame, Dove, Derwent, and Soar, and it passes Stoke,
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Gainsborough
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Trent Affair, American Civil War incident, 6550

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Leicestershire, 1838: see 3833, 3829
Trevelyan, George Macaulay, British
historian; born 1876: on Industrial
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Treves. Or Trier, ancient German city
in Rhenish Prussia, on the Moselle.
Here are remarkable Roman remains,
including an amphitheatre to seat
30,000 spectators, while the 11th-century cathedral is one of the most interesting in Europe. 60,000
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Porta Ligra, 4434
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Rodrigues, Indian Ocean, 3420
Treviso. Old city of Venetia, Italy,
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Titian. 50,000

with a Duomo containing pictures by Titian. 50,000 Trevithick, Richard, English inventor; born near Redruth, Cornwall, 1771; died Dartford 1833; builder of the first practical locomotive: 2752, 3212 at work on his engine, 2755 on his locomotive, 2749 railway set up in Euston Square, 2747 Triaenodes, insect, in colour, 5713 Triangle, low to find area: see Weights and Measures, quickest way of finding things

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Tribune of the People, name given to Mirabeau, 650
Triceratops, prehistoric monster, 1636
Trichia fungus, spores exposed to wind, 947

Trichinopoly. Agricultural centre in the Madras Presidency, India. Cheroots are manufactured. 125,000 Tricks, balance tricks with pencils, 128 blowing a brick over on a table, 1867 card that will not fly away, 1493 chair that comes to you, 2233 coin in the handkerchief, 5437 coin suspended, 5194
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Trim. Capital of Co. Meath, with remains of an abbey and a 12th-century castle. (3000)
Trinidad. Southernmost and second largest British West Indian island; area 1860 square miles; population 400,000; capital Port of Spain (65,000). It produces sugar and coconuts, but is important chiefly for its immense wealth in petroleum and for its pitch lake near Brea: 3423 what is the great pitch lake of Trinidad? 6730 cacao fruit being opened, 2311

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Trinity College, Dublin, arms, in colour,

Trinity College, Oxford, arms, in colour;

Trinity Hall, Cambridge, arms, in colour, 4988

Trinity Hall, Cambridge, arms, in colour, 4988
Trinity House. Ancient corporation controlling pilotage, lighthouses, beacons, and so on round the coasts of the British Isles. The headquarters of the corporation are on Tower Hill, London, and the Elder Brethren are chosen from members of the royal family, statesmen, retired naval officers, and officers of the mercantile marine Samuel Pepys once Master, 1850 flags, in colour, 2406
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Tripoliania, with mosques and gardens and a marble arch of Marcus Aurelius Tripoli, Syrian port, 6268
Tripolitania. Part of the Italian North African colony of Libya, capital Tripoli. The coastal regions are fertile and produce dates, olives, figs, cereals, and esparto grass, but except for cases the interior is arid and barren: 4909, 6749 native family, 6748
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interior is arid and barren: 4909, 6749 native family, 6748 salt evaporation at Benghazi, 1541 Tripos. Name given to certain honours degrees examinations in Cambridge University. In the 16th century the tripos was the three-legged stool on which the champion of the university at during the debates held when be helors of arts were admitted to degrees Triptolemus, story, 6819 Tristan da Cunha. Lonely British island in the South Atlantic, about milway between Cape Town and Buenos Aires. Its 120 people get a scanty living by agriculture and are visited by a warship annually, 3423, 5400 view, 3435

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Trossachs. Beautiful wooded district
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by Ben A'an and Ben Venue
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Tsinan. Capital of Shangtung, China, trading in silks, precious stones, and glass, 300,000
Tsingtau. Chinese port, capital of Klaochau territory, and formerly a German fortress. 350,000
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Tsushima, battle of. Great naval victory of the Japanese under Togo over a superior Russian fleet, in the Russo-Japanese War, in 1905. The efficiency and superior tactics of the Japanese enabled them to annihilate the Russians T.U., stands for Trade Union Tuam. City of Co. Galway, with Anglican and Roman Catholic cathedrals. (6000)
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Tunbridge filmy fern, in colour, 1797
Tunbridge Wells, Kent, view, 1590
Tundra. Vast barren lowlands fringing the Arctic coasts of Europe, Asia, and North America. The only vegetation that grows there are mosses, lichens, and stunted shrubs, providing food for reindeer, caribou, and muskoven, 1070, 2126
Tungsten, metal, uses, 1099, 2464 Tulip, member of genus Tulipa, 6497 oxen, 1070, 2126 Tungsten, metal, uses, 1099, 2464 melting point: see Heat, melting points metting points of metals
of metals
Tungus. A widespread race in Eastern
Siberia who are fishermen in the
Arctic, hunters in the forest districts,
and settled agriculturists in the rich Siberia who are fishermen in the Arctic, hunters in the forest districts, and settled agriculturists in the rich plains watered by the river Amur and its tributaries. They are believed to be the ancestors of the Manchu race. A cheerful, gentle, brave, truthful, and animated people, their features are mainly Mongolie, though their activity and intelligent expression point to a strain of Caucasic race

Tunicate, marine animal, backbone experiment by Nature, 42 sea-squirt's other name, 5345

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Tunis. Capital of Tunisia, occupied by the French since 1881. It contains many mosques and a Roman Catholic cathedral. The ruins of Carthage are near by. 172,000

inhabitants, 89, 6745, 6747

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Tunisia. French North African protectorate; area 50,000 square miles: population about 2,000,000; capital Tunis. Though much of it is hilly and arid, it is in many parts extremely fertile, producing cereals, figs. dates, oranges, vines, almonds, and olives: phosphates are a great export. The inhabitants are mainly Arabs and Kabyles, but the Europeans are increasing, and number over 200,000. Sfax, Susa, Bizerta, and Kairwan, a Moslem holy city, are among the chief towns. Tunisia once formed part of the Roman province of Africa, and has many antiquities, notably the ruins of Carthage, 6750

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why does a train make a noise in a tunnel? 6842 why does a train make a noise in a tunnel? 6842 picture-story of construction, 6215–28 work in, 339
Tupaia: see tree-shrew Tupi-guranians. People of American Indian race who originally occupied about one-fourth of South America. They now live in Paraguay and Parana, Brazil Tu quoque, Latin for Thou too; term used for a personal retort, as when a man is called a liar, and promptly replies You're another
Tur, goats closely allied to sheep, 1285
Turaeo: see Plantain-cater
Turbidimeter, for detecting the amount
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Turgeney, Ivan, one of the greatest Russian novelists; born Orel 1818; died near Paris 1883: see page 4818

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outer near Tails 1835. See page 4816 portrait, 1815. Turin. One of the chief industrial cities of northern Italy, with extensive motorcar, textile, paper, pottery, and hardware manufactures. Formerly capital of Piedmont, it is one of the finest modern cities of Italy; it has a cathedral, a university, and several beautiful churches. 506,000: see page 4916 cathedral of John the Baptist, 4920. Turkestan. Great stretch of Central Asia lying north of the Hindu Kush and the Kwen Lun. Western, or Russian, Turkestan is an immense region of over 500,000 square miles, with vast steppes and deserts interspersed with steppes and deserts interspersed with fertile cases and irrigated lands. Agrifertile cases and irrigated lands. Agri-culture and cattle-raising are the main occupations of the nomadic Turko-mans; but cotton, silk, woollen and linen goods, and carpets are manufac-tured in the towns, including Tashkent, Bokhara, Khiwa, and Khokand. Samar-kand was the capital of the Tartar con-

tured in the towns, including Tashkent, Bokhara, Khiwa, and Khokand. Samarkand was the capital of the Tartar conqueror Tamerlane in the 14th century. Eastern Turkestan, or Sinkiang, a dependency of China, is almost unknown except for the trade centres of Ili. Yarkand, and Kashgar, 6017, 6502 houses at Yarkand, 6501 maps of Chinese Turkestan, 6514–22 Turkey. Republic of south-east Europe, area 210,000 square miles; population about 12,000,000; capital Angora. It consists of castern Thrace, Asia Minor, and parts of Armenia and Kurdistan, Asia Minor being much the most important division. The country is generally mountainous, but in parts exceedingly fertile, producing vines, fruit, rice, wheat, cotton, and tobacco, while the Angora goat is reared for its molair. The Turks are Moslems, and are engaged almost exclusively in agriculture and stock-raising: education and transport are backward, though there are 1500 miles of railways. Constantinople (1,200,000), Smyrna (200,000), Broussa (100,000), Adrianople, Scutari, Sivas, Konia, Kaisarieh, and Trebizond are the chief towns. Once an insignificant Central Asian tribe, the Turks settled in Asia Minor in the 13th century, crossing into Europe in 1354. In 1453 they captured Constantinople, and by the end of the 16th century had overrun practically all south-east Europe, northern Africa, and western Asia. Their power declined rapidly in the 18th and 19th centuries, and in 1918 they lost Syria, Mesopotamia, and Arabia, 5025 Balkan Peninsula freed from, 4622 Byzantine architecture, 5624, 5740 Greek independence recognised, 4622 Hungary desolated by, 4547 Russian attacks on 5896

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Turkey red, Tutankhamen's clothes dyed
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Turkey rhubarb, origin of name, 2684 plant, in colour, 2687

Turkey-vulture: see Turkey-buzzard Turkis. The western section of the Northern Mongolic people. They include the Yakuts, Kirghiz, Uzbegs, Turkomans, Anatolians, and Osmanli. Their contact with the Caucasic type has modified the typical Mongol features in these races. They are nearly all Moslems

an Mosenns
Turkomans. A Turki race of nomadic
habits who inhabit the uplands and
steppes of Western Turkestan. They
are remarkable for their keen penetrating glance, and before their conquest
by Russia were ceaseless raiders

by Russia were ceaseless raiders Turk's cap cactus, what it is like, 3058 picture, 3055 Turk's cap lily, picture, 6381 Turks Islands. British West Indian island group, a dependency of Jamaica; area 170 square miles; population 56,000

56,000
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Turku. Formerly Abo, timber port of
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potrait of J. M. W. Turner, \$701
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Tweed. River forming part of the
boundary between England and Scotland. Rising in Clyde Law, it flows
through Peebles, Selkirk, Roxburgh,
and Berwickshire into the North Sea near Berwick, and has a famous woollen industry. Peebles, Galashiels, Melrose, and Kelso are the chief places it passes, and the Yarrow, Ettrick, Teviot, Till, and Whiteadder its principal tributaries.

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Knudstrup, Sweden. 1546; died Prague 1601; discovered the variation of the Moon; improved on the theories of Copernicus: 3491
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S miles from Newcastle. 65,000
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Tyrone. County of Ulster, Northern
Ireland; area 1280 square miles; population 145,000; capital Omagh
Tyrrhenian Sea. Part of the Mediterranean lying between Italy, Sicily,
Sardinia, and Corsica

Uccello, Paolo di Dono, Florentine itinerant painter; born Florence 1397; died there 1475: see page 825

died there 1475: see page 825
Udad: see Barbary sheep
Udaipur, town, India, Jain temple, interior, 5084
temple, 2955
Udall, Nieholas, English writer of plays; born Hampshire 1504: died Westminster 1556; author of Ralph Roister Doister, the first English comedy: 857
U.D.C. stands for Urban District Council

Udometer, for measuring the amount of

on the standard of the amount of rainfall in a given time

Ufa. Large trading centre in East
Russia. 100,000

U.F.C. stands for United Free Church of

Scotland

Scotland
Uffizi Gallery: see Florence
Uganda. British Protectorate in equatorial Africa: area 110,000 square
miles; population 3,100,000; capital
Entebbe. Occupied in 1890, it has
rapidly increased in prosperity, there
being excellent internal communication
by steamers on Lakes Victoria, Albert,
and Kioga. The natives are engaged in
cattle-raising and growing cotton, millet,
and sweet, notatoes: British planters

cattle-raising and growing cotton, miller, and sweet potatoes; British planters grow coffee and rubber. The chief trading centre is Kampala, 3314
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ogy Ducking, The, story, 3493
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U-grooved wheel pulley, 6349
Uhde, F. von, his paintings, Last Supper
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Uigurs. The first Turki nation to become a civilised State in Central Asia.
Originally dwelling in Eastern Turkestan, they were divided into two
sections—the On-uigurs, who penetrated westward to the Aral Sea and
followed Attila in large numbers into
Europe; and the Toghuz-nigurs, who
formed a great nation between Karakoram and Turfan in EasternTurkestan,
where vast ruins and manuscripts have
been discovered. Our word Ogre has
originated from their name
U.K. stands for United Kingdom

U.K. stands for United Kingdom U.K.A. stands for United Kingdom

Ukrainia, or The Ukraine. South Russian soviet republic, dependent on the Moscow government. It is famous for its rich black soil wheat-growing districts, and contains the cities of Kharkov, Kiev, and Odessa, 1713, 4548 flag, in colour, 4012 sheep in gorge, 6024 maps: see Russia maps Ullswater. Second largest lake in the

ullswater. Second largest lake in the Lake District, between Cumberland and Westmorland. It is about eight miles long and half a mile broad

Ilm. Old German city on the Danube, with a famous cathedral. After that of Cologne, this is the largest in Germany, and has a spire 530 feet high, the tallest

onogne, this is the largest in Germany, and has a spire 530 feet high, the tallest in the world. 60,000 architecture of cathedral, 5991 cathedral, exterior, 5097 Ulm, battle of (1805). Napoleon defeats Austrians, 1455, 4297 Ulphilas, Bishop, German barbarians converted to Christianity by, 1907 Ulpian, Roman jurist, definition of Justice, 4774 Ulster. Irish northern province, comprising six counties in Northern Ireland adhering to England and three in the Irish Free State; area 8613 square miles: population 1,580,000: see pages 1206, 3064 Ultima thule, Latin for The farthest boundary

boundary

Ultimo, Latin for Last; usually written

Ultra vires, Latin for Beyond one's power Ulysses, Latin form of the Greek name

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operation in 1801 Union, The (1707), the union of England and Wales with Scotland by treaty as the United Kingdom of Great Britain;

ratified on May 1 Union Island, colony of Britain, 3421 Union Jack, description and history, 2401, 5246

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See also British Isles
United Provinces. Indian provinces of
Agra and Oudh; area 107,000 square
miles; population 46,000,000; capital
Allahabad (160,000). Vast crops are
grown in the rich plain of the Ganges,
and here are many of the greatest
Indiantifics

and here are many of the greatest Indian cities
United States. Most important republic in the world, covering over 3,000,000 square miles in North America. With Alaska, it is almost as big as Europe. Between the Appalachians in the east and the Rocky Mountains in the west is the huge plain of the Mississippi, the richest agricultural district in the world, occupying more than half the country; and here enormous crops of is the huge plain of the Mississippi, the richest agricultural district in the world, occupying more than half the country; and here enormous crops of grain are grown and vast numbers of cattle pastured. In the south-east, from Texas to Virginia, is the great cotton belt, producing three-quarters of the world's supply of cotton, besides tobacco, sweet potatoes, rice, and maize. California has an immense production of fruit. Of the minerals the most important are coal and iron, which are found notably in Illinois, Ohio, and Pennsylvania. Gold, silver, and copper are mined in many parts of the west, while the petroleum production of the south central States is enormous. In 1921 the total mineral output was worth about £900,000, Manufacturing, however, is by far the most valuable industry, the goods produced in 1919 being worth about £13,000,000,000. The iron, steel, leather, motor-car, canning, and textile industries are all very important, commerce being served by over 260,000 miles of railways. Politically U.S.A. consists of a federation of 48 States, with the territories of Alaska and Hawaii. Washington, the capital (450,000), stands in the Federal District of Columbia. The commercial metropolis and by far the largest city is New York (5,700,000); next come Chicago (2,700,000). Philadelphia (1,850,000), and Detroit (1,000,000). St. Louis, Cleveland, Boston, Baltimore, Portfolk, Newyort News, Charleston, Sarannah, New Orleans, Galveston, San Francisco, and Scattle. The population in 1820 was under 10,000,000 immigrants from Europe arrive every year: 3791
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or, Abraham's hative city, 5204, 6800 recent discoveries, 5376, 6860 situation, 6271 copper lion from, 6853 Ural Mountains. Mountain range which runs north and south for 1600 miles between European Russia and Siberia. Platinum, gold, silver, iron, coal, salt, and precious stones are found in it, its output of platinum being very important. Tollpoziz, 5500 feet, is its highest summit, 5902, 6013, 6018 Ural owl, bird, 3501 Ural River. Russian river rising in the Ural Mountains and flowing into the Caspian. Orenburg is the only city it passes, it being generally too shallow for navigation. 1000 miles Urania, muse of astronomy, 3517 Uranus, planet. description, 3356 distance from Earth, 2990 facts and figures: see Astronomy tables

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magnificent ducai palace, 20,000 Urdaneta, Andreas de: see De Urdaneta Ure. Tributary of the Yorkshire Ouse in the North and West Ridings Urga. Capital of Outer Mongolia and seat of the Dampa Hutuktu, a great Buddhist pontiff. It trades in wool, hides, and furs. 30,000: see 6503 Uri, Swiss canton, 4670 Uriah, the Hittite, 1986 Uriah, Asiatic wild sheep, 1283 Urmia Lake. Salt lake covering 1800 square miles in the province of Azerbaijan, Persia. Fish cannot live in Urota sinope of Natal, moth, caterpillar in colour, 6209 Ursula, St., daughter of a British chieftain who is said to have gathered together a following of 11,000 virgins, and to have visited the continent in a fleet of galleys. They were massacred by the Huns at Cologne in 451, according to legend, 6812

need of gameys. They were massacred by the Huns at Cologne in 451, according to legend, 6812 pictures by Carpaccio, 932 Uruguay. Smallest South American Republic; area 72,000 square miles; population 1,500,000; capital Montevideo (400,000). Its characteristics are very similar to those of Argentina, the interior being mainly a treeless, grassy prairie, which provides pasture for vast numbers of cattle. Hides, skins, and meat are large exports. Uruguay was a bone of contention between Argentina and Brazil for 40 years after the collapse of Spanish rule, and only achieved complete independence in 1853: see pages 6999, 7012 flags in colour, 4012 scenes, 7011

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d'Ouessant, the westernmost point of France.
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V. stands for Roman numeral 5 V. means Against, standing for the Latin word Versus; or Sec, standing for the Latin word Vide

Vaal. Tributary of the Orange River forming the boundary between the Transvaal and Orange Free State. 500 miles scene on its banks, 3185

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Valdai Hills. Low range in north-west Russia in which the Volga rises
Valdes, Armando Palacio, Spanish novelist; born Entralgo, Asturias, 1853: see page 5055
Valdivia, Pedro de: see De Valdivia Valdivia. Port of southern Chile, exporting wheat, hides, wool, and whale oil. 20,000
Valence. Old French city on the Rhone, with an 11th century cathedral and a busy river trade, 20,000
Valencia. Spanish cathedral and university and Mediterranean port, the largest after Barcelona. It is a thriving manufacturing centre and does a great export trade, largely in fruit. 250,000: see pages 5278, 5994
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Valencia. One of the chief towns of Venezuela, with a university and a fine cathedral. 30,000
Valentia Island. Eastern terminus of the Anglo-American Telegraph Company's cable service, in Co. Kerry, Ireland. (1600)
Valentia, Shakespearian character in Two Gentlemen of Verona, 6039
Valentine, Shakespearian character in Two Gentlemen of Verona, 6039
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Valentia, St., Roman priest who was imprisoned by Claudius II and afterwards beheaded for converting his gaoler's family, after restoring the sight of a blind daughter. He has no connection with the worship of Juno Valera, de: see De Valera
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Vancouver. Chief Canadian Pacific port, the terminus of the C.P.R. and other railways. Standing on a magnificent harbour on the mainland of British Columbia, it has large shipbuilding and umber industries, and is becoming imumber industries, and is becoming im-

umber industries, and is becoming important as a grain port. 120,000 Pictures of Vancouver harbour, 2200, 3560 mountain peaks overlooking city, 2246 railway station, 2327 street seene, 2325 Vancouver Hotel, 6611 Vancouver Island. Beautiful island of British Columbia, Canada, covering about 20,000 square miles. The first part of the province to be settled, it part of the province to be settled, it has fruit-growing, fishing, and coalmining industries, Victoria (40,000) being the chief town and port

being the chief town and pore gigantic tree, 2373 Malahat Drive scene, 2204 Vanda, legend of Polish princess, 6131 Vandalism, wanton and deliberate de-struction, especially of ancient buildings and irreduced by works of out. The and irreplaceable works of art. The term refers to the harm worked by the Vandals, the Teutonic people who in the 5th century overran western and southern Europe, and attacked Rome Vandals, route through Germany,

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Venezuela. Northern Republic of South America; area about 365,000 square miles; population 2,500,000; capital Caracas (100,000). Its chief physical feature is the Orinoco, which, with its tributaries, provides about 12,000 miles of waterways, and roughly divides the agricultural and pastoral regions from the forests of the south. The country is now being rapidly developed, petroleum, coffee, cocoa, gold, hides, cattle, and sugar all being important exports. La Guayra, Valencia,

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in the world, built on 72 islets at the
head of the Adriatic Sea. It is traversed
by innumerable canals, on which the
gondola is almost the universal form of
transport: the Grand Canal, spanned
by the famous Rialto Bridge, is two
miles long and has 146 lesser canals
flowing into it. Here are the wonderful
cathedral of St. Mark, the Doge's
Palace, and the Bridge of Sighs, over
which prisoners were taken to their
dungeons. Along the Grand Canal
there are many splendid palaces, while
the picture galleries contain paintings
by Veronese, Tintoretto, Titian, the
Bellinis, Carpaccio, and others.
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by a railway viaduct two miles long;
it has famous glass, lace, jewellery, and
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contracted to verb. sap.

Verde. Cape. Westernmost point of Africa, in Senegal

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Vernet, Joseph, French landscape painter, 1690
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(\$000)

Warsaw. Polish capital and commercial and railway centre, on the Vistula. It has two cathedrals, a university, and many fine buildings, while manufactures include machinery, boots, woollens, chemicals, and tobacco. 940,000: see pages 6134, 6138 children in school, 6148 public buildings and scenes, 6144-5 Sobieski statue. 6137

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Wash, The. Shahow bay of the North Sea into which the rivers Witham, Welland, Nen, and Great Ouse fall. It is the remnant of a much larger bay which once covered a great part of the

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County, Virginia, 1732; died Mount Vernon, Virginia, 1799; led the American army in the War of Inde-pendence, 1637, 3678, 3680 Pictures of George Washington entering New York, 3677 leading army across Delaware, 1327 making a speech 1637

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Washington. Capital of the United
States, in the federal District of Columbia (D.O.) Standing on the Potomac,
it is chiefly notable for its fine buildings,
which include the Capitol, three universities, and the White House, the residence of the president. 450,000
Abraham Lincoln memorial, 3790
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Washington (State). Mountainous
American western State; area 69,000
square miles; population 1,400.000;
capital Olympia. The wettest part of
U.S.A., it is generally thickly wooded,
and lumbering, coalmining, fishing, and
agriculture are the chief industries.
The largest towns are Seattle (320,000)
and Spokane (110,000). Abbr. Wash.
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One gallon occupies 277:274 cubic inches, or -16 cubic feet
One gallon weighs 10 pounds
One cubic foot weighs 62:32 pounds
One cubic foot of sea-water weighs

64 pounds

04 pounds One cubic foot contains 6-232 gallons One cubic foot is equal to 28'375 litres One cubic inch of water weighs -036 pounds

One cubic yard contains 170 gallons
One cubic yard weighs 15 hundredweights

One ton of sea water occupies 34-937 cubic feet One ton of fresh water occupies 35.88 cubic feet
One ton of fresh water contains 224

gallons
One cubic foot of ice weighs 57.8

pounds Water boils at 1 80° Réaumur boils at 100° Cent., 212° Fahr.,

Fresh water freezes at zero Cent. and Rénumur, and 32° Fahr. Sea water freezes at 27° Fahr. Sea water is equal to 1.027 the weight

of pure water Pure water is equal to .973 the weight of sea water

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Material second will move fine clay 3 6 will move will move fine sand coarse sand (one inch in diameter) will move ... 12 36 rill move .. stones (as large as hen's eggs)

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Upper Yosemite, Callifornia
Gavanie, France.

Takkakaw, British Columbia
Vettis, Norway
Multnomah, Oregon
Kaieteur, British Guiana
Rjukan, Norway
Middle Yosemite, California
Voringfos, Norway
Skineggedalsfos, Norway
Skineggedalsfos, Norway
Skirling, New Zealand
Victoria, Africa
Lower Yosemite, California
Lower Yosemite, California
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Waterford. Capital, cathedral city, and port of Co. Waterford, near the mouth of the Suir. It has steamship connections.

85,000; capital waterford
Waterford. Capital, cathedral city, and
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67,000 of the allies faced Napoleon

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in Kent, Surrey, and Sussex. From the
time of the Romans to the beginning
of the 19th century it was an important
centre of the iron industry, vast numbers of trees being felled to provide
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# WEIGHTS AND MEASURES COMPREHENSIVE SERIES OF TABLES FOR QUICK AND READY REFERENCE

The abbreviations commonly used are given with each weight or measure

		The appreviations co	mimoniy used are	given with each	weight or measure	
•	Avoiri	OUPOIS WEIGHT	Liquid M	[easure	OLD ENGLISH MEASURES	
	16 drams dr	= 1 ounce, oz.	4 gills, gill =	1 pint, pt.		
	16 ounces	= 1 pound, lb.	2 pints =	1 quart, qt.	72 points = 1 inch 12 lines = 1 inch	
	14 pounds	= 1 stone, st.	4 quarts =	1 gallon, gal.	12 lines = 1 inch 3 barley corns = 1 inch	
	28 pounds	= 1 quarter, qr.	Down Mar		inch = 1 digit	
	4 quarters	= 1 hundredweight,	DRY ME		$2\frac{1}{4}$ inches $\phi = 1$ nail, n.	
	20 hundradwaic	cwt.	2 pints, pt. =	1 quart, qt.	3 inches = 1 palm	
	20 hundredweig 100 pounds	= 1 cental, or short	4 quarts = 2 gallons =	1 gallon, gal. 1 peck, pk.	4 inches = 1 hand, hd.	
	zao pomido	cwt.	4 pecks =	1 bushel, bush.	9 inches = 1 span	
	2000 pounds	= 1 short ton	8 bushels =	1 quarter, qr.	1½ yards = 1 English ell 1½ yards = 1 French ell	
	7000 grains	== 1 pound	36 bushels =	1 chaldron, chal.	$\frac{11}{2}$ yards = 1 French ell 37.06 inches = 1 Scottish ell	
	ማ ጥ ው	Y WEIGHT	5 quarters =	1 wey	18  inches = 1  cubit	
			2 weys =	1 last	3 feet or 5 feet = 1 pace 4 bushels = 1 coomb	
	3.1683 grains	= 1 carat = 1 pennyweight,	CIRCULAR	MEASURE	4 bushels = 1 coomb	
	er grams, gr.	- 1 pennyweight, dwt.	60 seconds, ' =	1 minute '	1 yoke of land (4 acre) is a day's work for two oxen	
	20 pennyweight	s= 1 ounce, oz.	60 minutes =	1 degree, °	101 WO OXEII	
	12 ounces or 57	60 grains = 1 pound, lb.	30 degrees =	1 sign, s.	MISCELLANEOUS MEASURES	
			90 degrees =	1 right angle,		
	APOTHECAR	Y'S WEIGHT, DRY		rt. 🗋 , or quad-	8 pounds = 1 stone of meat	
		′ _		rant	56 pounds = 1 firkin of butter 12 articles = 1 dozen	
	20 grains, gr.	$= 1$ scruple, $\mathfrak{D}$	180 degrees =	1 semi-circle, 🛆	13 articles = 1 long dozen	
	3 scruples	= 1 drachm, 3	360 degrees =	1 circle, 🗿	12 dozen = 1 gross	
	8 drachms	$=1$ ounce, $\tilde{\mathfrak{Z}}$		. •	12 gross = 1 great gross	
	12 ounces	= 1 pound, 1b.	HAY AND STR	AW WEIGHT	20 articles = 1 score	
			36 pounds of straw		24 sheets = 1 quire 20 quires = 1 ream	
	ADOTHER LDV'	s Measure, Liquid	56 pounds of old hay		20 quires = 1 ream 1 lac = 100,000	
		s bleastne, might	60 pounds of new ha		10 gallons = 1 anker of wine	
	60 minims or		36 trusses 1 load of straw	= 1 load = 11 cwts, 64 lb,	18 gallons = 1 runlet	
		$\mathfrak{h} = 1$ fluid drachm, $f\mathfrak{Z}$	I load of old hay	= 18 cwts	42 gallons = 1 tierce	
		$s = 1$ fluid ounce, $f \ \overline{5}$	1 load of new hay	= 19 cwts. 32 lb.	The hogshead and the pipe vary	7
	20 fluid ounces	= 1 pint, O			according to the kind of wine	
	8 pints	= 1 gallon, Cong.	Woor A	WEIGHT	MONEY TABLE	
	_		7 pounds avoirdi		MOMBI TROBE	
	LINE	AR MEASURE	14 pounds	= 1 stone	4 farthings = 1 penny	
	12 inches, ins.	= 1 foot, ft.	28 pounds 182 pounds	= 1 tod = 1 wev	12 pence = 1 shilling	
	3 feet	= 1 yard, yd.	364 pounds	= 1 sack	20 shillings = 1 pound, or sovereign	`
	5½ yards	= 1 rod, rd., pole, po.,	4368 pounds			•
		= 1 rod, rd., pole, po., or perch, per.	4368 pounds 20 pounds	= 1 last = 1 score	2 shillings = 1 florin	
	40 poles	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur.	4368 pounds	= 1 last	2 shillings = 1 florin 2s. 6d. = 1 half-crown	
	40 poles 8 furlongs	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi.	4368 pounds 20 pounds 12 score	= 1 last = 1 score = 1 pack	2 shillings = 1 florin	
	40 poles	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur.	4368 pounds 20 pounds 12 score MEASURES	= 1 last = 1 score = 1 pack	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown	•
	40 poles 8 furlongs 3 miles	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi.	4368 pounds 20 pounds 12 score  Measures 60 seconds, sec. =	= 1 last = 1 score = 1 pack OF TIME 1 minute, min.	2 shillings = 1 florin 2s. 6d. = 1 half-crown	•
	40 poles 8 furlongs 3 miles	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes =	= 1 last = 1 score = 1 pack OF TIME 1 minute, min. 1 hour, hr.	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown FOREIGN MONEY Owing to the chaos wrought among	g
	40 poles 8 furlongs 3 miles LAN 7-92 inches	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league D MEASURE = 1 link, li.	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours 7 days =	= 1 last = 1 score = 1 pack for TIME 1 minute, min. 1 hour, hr. 1 day, dy. 1 week, wk.	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has	g
	40 poles 8 furlongs 3 miles LAN 7-92 inches 25 links	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league D MEASURE = 1 link, li. = 1 rod, rd.	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks =	= 1 last = 1 score = 1 pack for Time 1 minute, min. 1 hour, hr. 1 day, dy. 1 week, wk. 1 fortnight	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign	g s n
	40 poles 8 furlongs 3 miles LAN 7-92 inches 25 links 4 rods or 100	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league D MEASURE = 1 link, li. = 1 rod, rd. links = 1 chain, ch.	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, scc. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks =	= 1 last = 1 score = 1 pack for TIME 1 minute, min. 1 hour, hr. 1 day, dy. 1 week, wk.	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  Foreign Money  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any	g s n
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	40 poles 8 furlongs 3 miles LAN 7-92 inches 25 links 4 rods or 100 80 chains	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links = 1 chain, ch. = 1 mile, mi.	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 365 days or 52 weeks, or 12 cal-	= 1 last = 1 score = 1 pack for Time 1 minute, min. 1 hour, hr. 1 day, dy. 1 week, wk. 1 fortnight	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  Foreign Money  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal an approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign	g s n y h e n
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	40 poles 8 furlongs 8 miles  LAN 7-92 inches 25 links 4 rods or 100 80 chains  Square inch	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links= 1 chain, ch. = 1 mile, mi.  RE MEASURE es,	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 3654 days or 52 weeks, or 12 calendar months or 13 lunar months = 366 days =	= 1 last = 1 score = 1 pack for Time 1 minute, min. 1 hour, hr. 1 day, dy. 1 week, wk. 1 fortnight 1 lunar month, mo.	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign countries in pre-war days, and we may hope that one day the exchanges will	g s n y h e n v
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	40 poles 8 furlongs 8 furlongs 7-92 inches 25 links 4 rods or 100 80 chains SQUA 144 square inch sq. in. 9 square feet 30½ square	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links= 1 chain, ch. = 1 mile, mi.  RE MEASURE es, = 1 square foot, sq. ft. t = 1 square yard, sq.yd. = 1 square rod, sq. rd.; square pole, sq. po.; or square perch, sq. per.	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 4 weeks = 13654 days or 52 weeks, or 12 calendar months or 13 lunar months or 13 lunar months = 100 years = NAUTICAL 6 OS feet = 100 fathoms = 100 open selections 100 pen selections 100 fothoms	= 1 last = 1 score = 1 pack  For Time  I minute, min. I hour, hr. I day, dy. I week, wk. I fortnight I lunar month, mo.  1 year I leap year I century I millennium  MEASURES = 1 fathom, fa. = 1 cable's length or  I nautical mile	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign countries in pre-war days, and we may hope that one day the exchanges will get back to these values.  Franc (France) = 9½d.  Mark (Germany) = 10½d.  Dollar (U.S.A.) = 4s. 2d.  Rouble (Russia) = 3s. 2d.  Krone (Austria) = 8¾d.	g s n y h e n v
	40 poles 8 furlongs 3 miles  LAN. 7-92 inches 25 links 4 rods or 100 80 chains  SQUA 144 square inch sq. in. 9 square feet 30½ square yards  40 square pole	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links= 1 chain, ch. = 1 mile, mi.  RE MEASURE es, = 1 square foot, sq. ft. t = 1 square yard, sq. yd. = 1 square rod, sq. rd.; square pole, sq. po.; or square perch, sq. per. ts= 1 rood, r.	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 1 weeks or 52 weeks, or 12 calendar months or 13 lunar months or 13 lunar months = 866 days = 100 years = 1000 years = 1000 fathoms = 10 cable's lengths of 1000 fathoms 60 nautical miles =	= 1 last = 1 score = 1 pack 6 OF TIME 1 minute. min. 1 hour, hr. 1 day, dy. 1 week, wk. 1 fortnight 1 lunar month, mo. 1 year 1 leap year 1 century 1 millennium MEASURES = 1 fathom, fa. = 1 cable's length or 1 nautical mile 1 degree	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign countries in pre-war days, and we may hope that one day the exchanges will get back to these values.  Franc (France) = 9½d.  Mark (Germany) = 10½d.  Dollar (U.S.A.) = 4s. 2d.  Rouble (Russia) = 3s. 2d.  Krone (Austria) = 8¾d.  Rupee (India) = 1s. 10½d.	g s n y h e n v
	40 poles 8 furlongs 3 miles  LAN 7-92 inches 25 links 4 rods or 100 80 chains  SQUA 144 square inch sq. in. 9 square feet 30½ square yards  40 square pole 4 roods	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links= 1 chain, ch. = 1 mile, mi.  RE MEASURE es, = 1 square foot, sq. ft. t = 1 square yard, sq.yd. = 1 square rod, sq. rd.; square pole, sq. po.; or square perch, sq. per.  s= 1 rood, r. = 1 acre, ac. = 1 square mile	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, scc. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 14 weeks = 14 weeks = 150 years = 1000 years = 1000 years = 1006 fathoms = 10 cable's lengths of 1000 fathoms = 10 cable's lengths of 1000 fathoms = 10 cable's lengths of 1000 fathoms = 1000 fa	= 1 last = 1 score = 1 pack  For Time  I minute, min. I hour, hr. I day, dy. I week, wk. I fortnight I lunar month, mo.  I year I leap year I century I millennium  MEASURES = 1 fathom, fa. = 1 cable's length  I nautical mile = I degree the Earth's cir-	2 shillings = 1 florin 2s, 6d. = 1 half-crown 5 shillings = 1 crown FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign countries in pre-war days, and we may hope that one day the exchanges will get back to these values.  Franc (France) = 9½d.  Mark (Germany) = 10½d.  Dollar (U.S.A.) = 4s. 2d.  Rouble (Russia) = 3s. 2d.  Krone (Austria) = 8¼d.  Rupee (India) = 1s. 10½d.  Tael (China) = 6s. 6¼d.	g s n y h e n v
	40 poles 8 furlongs 3 miles  LAN. 7-92 inches 25 links 4 rods or 100 80 chains  SQUA 144 square inch sq. in. 9 square feet 30½ square yards  40 square pole	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links= 1 chain, ch. = 1 mile, mi.  RE MEASURE es, = 1 square foot, sq. ft. t = 1 square yard, sq.yd. = 1 square rod, sq. rd.; square pole, sq. po.; or square perch, sq. per.  s= 1 rood, r. = 1 acre, ac. = 1 square mile	4368 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 365½ days or 52 weeks, or 12 calendar months or 13 lunar months = 366 days = 100 years = 1000 years = 1000 fathoms = 6 nautical miles = 360 degrees = 1 knot (a mea-	= 1 last = 1 score = 1 pack  FOR TIME  I minute, min. I hour, hr. I day, dy. I week, wk. I fortnight I lunar month, mo.  I year I leap year I century I millennium  MEASURES = 1 fathom, fa. = 1 cable's length or = 1 nautical mile = 1 degree = the Earth's circumierence	2 shillings = 1 florin 2s, 6d. = 1 half-crown 5 shillings = 1 crown  Foreign Money  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign countries in pre-war days, and we may hope that one day the exchanges will get back to these values.  Franc (France) = 9½d.  Mark (Germany) = 10½d.  Dollar (U.S.A.) = 4s. 2d.  Rouble (Russia) = 3s. 2d.  Krone (Austria) = 8¼d.  Rupee (India) = 1s. 10½d.  Tael (China) = 6s. 6¼d.  Pound (Egypt) = 20s. 3½d.	g s n y h e n v
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	40 poles 8 furlongs 3 miles  LAN. 7-92 inches 25 links 4 rods or 100 80 chains  SQUA 144 square inch sq. in. 9 square feet 30½ square yards  40 square pole 4 roods 640 acres  LAND S 625 square links sq. li. 16 square rods	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links= 1 chain, ch. = 1 mile, mi.  RE MEASURE  es, = 1 square foot, sq. ft. t = 1 square rod, sq. yd. = 1 square rod, sq. rd.; square pole, sq. po.; or square perch, sq. per. = 1 acre, ac. = 1 square mile, sq. mi. QUARE MEASURE  sq. 1 square rod, sq. rd. sq. 1 square rod, sq. rd. sq. 1 square rod, sq. rd. sq. mi.	4368 pounds 20 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 365½ days or 52 weeks, or 12 calendar months or 13 lunar months = 366 days = 1000 years = 1000 years = 1000 fathoms = 60 nautical miles = 360 degrees = 1 knot (a measure of speed) =  QUARTE In Englanc Lady Day	= 1 last = 1 score = 1 pack  FOR TIME  1 minute, min. 1 hour, hr. 1 day, dy. 1 week, wk. 1 fortnight 1 lunar month, mo.  1 year 1 leap year 1 century 1 millennium  MEASURES = 1 fathom, fa. = 1 cable's length or = 1 degree = 1 degree = the Earth's circum'erence = 1 nautical mile per hour  EN DAYS d and Ireland March 25	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign countries in pre-war days, and we may hope that one day the exchanges will get back to these values.  Franc (France) = 9½d.  Mark (Germany) = 10½d.  Dollar (U.S.A.) = 4s. 2d.  Rouble (Russia) = 3s. 2d.  Krone (Austria) = 8¾d.  Rupee (India) = 1s. 10½d.  Tael (China) = 6s. 6¾d.  Pound (Egypt) = 20s. 3½d.  Pound (Turkish) = 18s. 0¾d.  Yen (Japan) = 4s. 3¼d.  Milreis (Brazil) = 2s. 0¾d.  Krone (Scandin-avian countries)	g s n y h e n v
	40 poles 8 furlongs 3 miles  LAN 7-92 inches 25 links 4 rods or 100 80 chains  SQUA 144 square inches 9 square feet 30½ square yards  40 square pole 4 roods 640 acres  LAND S 625 square links sq. li. 16 square rods 10 square chai	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links= 1 chain, ch. = 1 mile, mi.  RE MEASURE es, = 1 square foot, sq. ft. t = 1 square yard, sq.yd. = 1 square yard, sq.yd. = 1 square pole, sq. po.; or square perch, sq. po.; or square perch, sq. per. es= 1 rod, r. = 1 acre, ac. = 1 square mile, sq. mi. QUARE MEASURE s, = 1 square rod, sq. rd. s = 1 square chain, sq. ch. ms= 1 acre, ac.	4368 pounds 20 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 4 weeks = 100 years = 1000 years = 1000 years = 1000 fathoms =	= 1 last = 1 score = 1 pack  For Time  I minute, min. I hour, hr. I day, dy. I week, wk. I fortnight I lunar month, mo.  I year I leap year I century I millennium  MEASURES = 1 fathom, fa. = 1 cable's length or I nautical mile or I mautical mile	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign countries in pre-war days, and we may hope that one day the exchanges will get back to these values.  Franc (France) = 9½d.  Mark (Germany) = 10½d.  Dollar (U.S.A.) = 4s. 2d.  Rouble (Russia) = 3s. 2d.  Krone (Austria) = 8¾d.  Rupee (India) = 1s. 10½d.  Pound (Egypt) = 20s. 3½d.  Pound (Egypt) = 20s. 3½d.  Pound (Turkish) = 18s. 0¾d.  Milreis (Brazil) = 2s. 0¾d.  Krone (Scandin- avian countries) = 1s. 0¾d.  Florin (Holland) = 1s. 8d.	g s n y h e n v
	40 poles 8 furlongs 3 miles  LAN. 7-92 inches 25 links 4 rods or 100 80 chains  SQUA 144 square inch sq. in. 9 square feet 30½ square yards  40 square pole 4 roods 640 acres  LAND S 625 square links sq. li. 16 square rods	= 1 rod, rd., pole, po., or perch, per. = 1 furlong, fur. = 1 mile, mi. = 1 league  D MEASURE = 1 link, li. = 1 rod, rd. links= 1 chain, ch. = 1 mile, mi.  RE MEASURE es, = 1 square foot, sq. ft. t = 1 square rod, sq. rd.; square pole, sq. po.; or square perch, sq. per. ts= 1 rood, r. = 1 acre, ac. = 1 square mile, sq. mi. QUARE MEASURE S, = 1 square rod, sq. rd. ts= 1 rod, rd. sq. mi. sq. mi. sq. mi. sq. ch. ns= 1 acre, ac. = 1 square chain, sq. ch. ns= 1 acre, ac. = 1 square mile,	4368 pounds 20 pounds 20 pounds 12 score  MEASURES 60 seconds, sec. = 60 minutes = 24 hours = 7 days = 2 weeks = 4 weeks = 365½ days or 52 weeks, or 12 calendar months or 13 lunar months = 366 days = 1000 years = 1000 years = 1000 fathoms = 60 nautical miles = 360 degrees = 1 knot (a measure of speed) =  QUARTE In Englanc Lady Day	= 1 last = 1 score = 1 pack  FOR TIME  I minute, min. I hour, hr. I day, dy. I week, wk. I fortnight I lunar month, mo.  I year I leap year I century I millennium  MEASURES = 1 fathom, fa. = 1 cable's length or - the Earth's circum'erence = 1 nautical mile - degree - the Earth's circum'erence = 1 nautical mile - degree - the Earth's circum'erence = 1 nautical mile - degree - the Earth's circum'erence - 1 nautical mile - degree - the Earth's circum'erence - 1 nautical mile - degree - the Earth's circum'erence - 1 nautical mile - degree - the Earth's circum'erence - 1 nautical mile - degree - the Earth's circum'erence - 1 nautical mile - degree - the Earth's circum'erence - 1 nautical mile - degree - the Earth's circum'erence - 1 nautical mile - degree - the Earth's circum'erence - 1 nautical mile - degree - the Earth's circum'erence - the Earth's circum'erenc	2 shillings = 1 florin 2s. 6d. = 1 half-crown 5 shillings = 1 crown  FOREIGN MONEY  Owing to the chaos wrought among the exchanges by the War, which has continued through the peace, foreign money cannot now be said to equal any approximately fixed amount of English money. But this table shows the value of the standard coins of many foreign countries in pre-war days, and we may hope that one day the exchanges will get back to these values.  Franc (France) = 9½d.  Mark (Germany) = 10½d.  Dollar (U.S.A.) = 4s. 2d.  Rouble (Russia) = 3s. 2d.  Krone (Austria) = 8¾d.  Rupee (India) = 1s. 10½d.  Tael (China) = 6s. 6¾d.  Pound (Egypt) = 20s. 3½d.  Pound (Egypt) = 20s. 3½d.  Yen (Japan) = 4s. 3¼d.  Milreis (Brazil) = 2s. 0¾d.  Krone (Scandin = avian countries) = 1s. 0¾d.  Florin (Holland) = 1s. 8d.  Peso (Mexico) = 4s. 3¾d.	g s n y h e n v
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# WEIGHTS AND MEASURES TABLES

OLD ENGLISH COINS	AVERAGE WEIGHT OF ONE PECK	POUNDS IN A CUBIC FOOT OF MATERIAL
1 groat = 4 pence	_	Aluminium 165
1 tester = 6 pence		Brass 525
1 noble = 6s. 8d.	~	Copper 550
1 angel = 10s.	C 1 2 10	Cast Iron 437 to 474
1 half guinea = 10s. 6d.	0 "	Wrought Iron 474 to 486
1 mark = 13s. 4d.	0 1	Steel 500
1 guinea = £1 1s.	701	Lead 711 Tin 456 <sub>e</sub>
1 Carolus = £1 3s.	70	Cement 86 to 94
1 Jacobus = £1 5s.	70 / /	Coal 79 to 80
1 Moidore = £1e. 7s.	Raspherries 12 ,,	Coke 46
1 Joannes = £1 16s.	Turnips 12 ,,	Glass 158
YARDS IN A MILE IN MANY COUNTRIES		Ice 57·4 Loose Snow 5 to 12
England and U.S.A. 1760	THE METRIC SYSTEM	Moist Snow 5 to 12 Moist Snow 15 to 20
England (Geographical) 2029	MEASURES OF WEIGHT	Tar 63
English (Admiralty) 2027	10 milligrammes, = 1 centigramme,	Air ∙0807 €
English (Nautical) 2026	mg. cg.	Water 62·32
Bohemian 10,187	10 centigrammes = 1 decigramme, dg.	Steam
Chinese 682	10 decigrammes = 1 gramme, g.	Asphalt 156 Portland Cement 86 to 94
Danish 8244	10 grammes = 1 decagramme, Dg.	Chalk 145 to 162
German (Geographical) 8100	10 decagrammes = 1 hectogramme,	Flint 162 to 170
Hungarian 9113	Hg.	Granite 160 to 167
Irish 2240	10 hectogrammes = 1 kilogramme, Kg.	Limestone 162
French (marine) 6075	10 kilogrammes = 1 myriagramme,	Portland Stone 151
Italian 2025	Mg. 10 myriagrammes = 1 quintal, Ql.	Quartz 166 Sandstone 157 to 165
Russian (a verst) 1167		Sandstone 157 to 165 Slate 180
Scottish 1976½	10 quintals = 1 tonne, T.	Rock Salt 140
Swiss 9166	LINEAR MEASURE	Dry Clay 75
Swedish 11,704		Wet Clay 116
Turkish 1821	10 millimetres, = 1 centimetre, cm.	Dry Earth 78
POUNDS IN A BUSHEL OF VARIOUS FOODS	10 centimetres = 1 decimetre, dm.	Wet Earth 98
Beans 66	10 decimetres = 1 metre, m.	Dry Garden Mould 68
Salt 65	10 metres = 1 decametre, Dm.	Wet Garden Mould 102
Lentils 63	10 decametres = 1 hectometre, Hm.	Dry Peat 32
Peas 63	10 hectometres = 1 kilometre, Km.	Wet Peat 70
Maize 60	10 kilometres = 1 myriametre,	Dry Sand111
****		Wet Sand 136
Wheat 60	Mm.	Wet Sand 136
	SQUARE MEASURE	AVERAGE NUMBER OF SEEDS IN A
Onions 57	SQUARE MEASURE 100 square millimetres, sq. mm. or	AVERAGE NUMBER OF SEEDS IN A POUND
Onions 57 Potatoes	Square Measure  100 square millimetres, sq. mm. or $mm^2 = 1$ square centimetre, sq.	AVERAGE NUMBER OF SEEDS IN A POUND Chicory
Onions         57         Potatoes         56         Barley	Square Measure  100 square millimetres, sq. mm. or  mm² = 1 square centimetre, sq.  cm. or cm².	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54	Square Measure  100 square millimetres, sq. mm. or  mm² = 1 square centimetre, sq.  cm. or cm².  100 square centimetres = 1 square	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45	Square Measure  100 square millimetres, sq. mm. or  mm² = 1 square centimetre, sq.  cm. or cm².  100 square centimetres = 1 square  decimetre, sq. dm. or dm².	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40         Parsnips       40	Square Measure  100 square millimetres, sq. mm. or  mm² = 1 square centimetre, sq.  cm. or cm².  100 square centimetres = 1 square  decimetre, sq. dm. or dm².  100 square decimetres = 1 square	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40	Square Measure  100 square millimetres, sq. mm. or  mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m²,	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40         Parsnips       40	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.	AVERAGE NUMBER OF POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40         Parsnips       40         Oats       40	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40         Parsnips       40         Oats       40         Pounds in a Cubic Foot of Timber	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm.	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40         Parsnips       40         Oats       40         Pounds in a Cubic Foot of Timber Alder       33	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.	AVERAGE         Number Pound         SEEDS IN A Pound           Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40         Parsnips       40         Oats       40         Pounds IN A Cubic Foot of Timber         Alder       33         Ash       46         Beech       46         Birch       40	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40         Parsnips       40         Oats       40         POUNDS IN A CUBIC FOOT OF TIMBER Alder       33         Ash       46         Beech       46         Birch       40         Horse Chestnut       35	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare,	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions       57         Potatoes       56         Barley       55         Rye       54         Swedes       45         Turnips       45         Carrots       40         Parsnips       40         Oats       40         Pounds in a Cubic Foot of Timber Alder       33         Ash       46         Beech       46         Birch       40         Horse Chestnut       35         Spanish Chestnut       41	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         46           Oats         40           POUNDS IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Elm         43	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) =	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           POUNDS IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Ehn         43           Silver Fir         30	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           Pounds IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hazel         39	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm¹, Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           Pounds IN A Cubic Foot of Timber           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hazel         39           Hornbeam         45	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm¹, Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         46           Oats         40           POUNDS IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Clestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubio Measure  1000 cubic millimetres, cu.mm. or mm.²	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         46           Oats         40           POUNDS IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.³  =1 cubic centimetre, cu.mm. or cm.³	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           POUNDS IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Ehn         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28           Maple         42	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.³  =1 cubic centimetre, cu.mm. or cm.³  1000 cubic centimetres=1 cubic deci-	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           POUNDS IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Ehn         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square decametre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.² =1 cubic centimetres, cu.mm. or cm.²  1000 cubic centimetres=1 cubic decimetre, cu.dm. or dm.²	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           Pounds IN A Cubic Foot of Timber           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53           Scots Pine         32	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square decametre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.² = 1 cubic centimetre, cu.mm. or cm.²  1000 cubic centimetres=1 cubic decimetre, cu.dm. or dm.³  1000 cubic decimetres=1 cubic metre,	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         46           Oats         40           POUNDS IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Clestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53           Scots Pine         32           Poplar         30	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.³ =1 cubic centimetre, cu.mm. or cm.³  1000 cubic centimetres=1 cubic decimetre, cu.dm. or dm.³  1000 cubic decimetres=1 cubic metre, cu.m, or m²	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         46           Oats         40           POUNDS IN A CURIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53           Scots Pine         32           Poplar         30           Norway Spruce         30	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square decametre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.² = 1 cubic centimetre, cu.mm. or cm.²  1000 cubic centimetres=1 cubic decimetre, cu.dm. or dm.³  1000 cubic decimetres=1 cubic metre,	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           Pounds IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         40           Horse Chestnut         35           Spanish Chestnut         41           English Ehn         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53           Scots Pine         32           Poplar         30           Norway Spruce         30           Sycamore         41	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.³ =1 cubic centimetre, cu.mm. or cm.³  1000 cubic centimetres=1 cubic decimetre, cu.dm. or dm.³  1000 cubic decimetres=1 cubic metre, cu.m, or m²	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           Pounds IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Ehn         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53           Scots Pine         32           Poplar         30           Norway Spruce         30           Sycamore         41           Willow         33	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.³ =1 cubic centimetre, cu.mm. or cm.³  1000 cubic centimetres=1 cubic decimetre, cu.dm. or dm.³  1000 cubic decimetres=1 cubic metre, cu.m, or m²  Measure of Capacity	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           Pounds IN A Cubic Foot of Timber           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53           Scots Pine         32           Poplar         30           Norway Spruce         30           Sycamore         41           Willow         33	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  Cubic Measure  1000 cubic millimetres, cu.mm. or mm.² = 1 cubic centimetre, cu.mm. or cm.²  1000 cubic centimetres = 1 cubic decimetre, cu.dm. or dm.²  1000 cubic decimetres = 1 cubic metre, cu.m., or m²  Measure of Capacity  10 millilitres, ml. = 1 centilitre, cl.	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory . 335,000 Flax . 108,000 Parsnip . 100,000 Carrot . 250,000 Mustard . 75,000 Mustard . 75,000 Cabbage . 120,000 Turnip . 170,000 White Clover . 686,000 Red Clover . 249,000 Pea . 1500 Wheat . 11,100 Oats . 17,500 Barley . 10,000 Rye . 20,000 Kohl-rabi . 131,000 Alder . 300,000 Ash . 6500 Beech . 2000 Birch . 800 000 Spanish Chestnut . 115 Horse Chestnut . 110 Elm . 70,000 Hornbean . 14,000 Larch . 75,000 Linne . 5000
Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         46           Oats         40           POUNDS IN A CUBIC FOOT OF TIMBER           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Elm         43           Silver Fir         30           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53           Scots Pine         32           Poplar         30           Norway Spruce         30           Sycamore         41           Willow         33           STEENGTH OF ICE           1½ inches thick will support a man	Square Measure  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  CUBIC MEASURE  1000 cubic millimetres, cu.mm. or cm.³  1000 cubic centimetre, cu.mm. or cm.³  1000 cubic decimetres=1 cubic decimetre, cu.dm. or dm.³  1000 cubic decimetres=1 cubic metre, cu.m, or m²  MEASURE OF CAPACITY  10 millilitres, ml. = 1 centilitre, cl.  10 centilitres = 1 decilitre, dl.	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
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Onions         57           Potatoes         56           Barley         55           Rye         54           Swedes         45           Turnips         45           Carrots         40           Parsnips         40           Oats         40           Pounds IN A Cubic Foot of Timber           Alder         33           Ash         46           Beech         46           Birch         40           Horse Chestnut         35           Spanish Chestnut         41           English Ehn         43           Silver Fir         30           Hazel         39           Hornbeam         45           Larch         38           Lime         28           Maple         42           Oak         53           Scots Pine         32           Poplar         30           Norway Spruce         30           Sycamore         41           Willow         33           STRENGTH OF ICE           1½ inches thick will support horsemen           10 inches thick will support horsem	SQUARE MEASURE  100 square millimetres, sq. mm. or mm² = 1 square centimetre, sq. cm. or cm².  100 square centimetres = 1 square decimetre, sq. dm. or dm².  100 square decimetres = 1 square metre or 1 centiare, sq. m. or m², ca.  100 square metres (centiares) = 1 square decametre or 1 are, sq. Dm. or Dm², a.  100 square decametres (ares) = 1 square hectometre or 1 hectare, sq. Hm. or Hm², Ha.  100 square hectometres (hectares) = 1 square kilometre, sq. Km. or Km².  CUBIC MEASURE  1000 cubic millimetres, cu.mm. or mm.³ =1 cubic centimetre, cu.mm. or cm.³  1000 cubic decimetres=1 cubic decimetre, cu.dm. or dm.³  1000 cubic decimetres=1 cubic metre, cu.m, or m²  MEASURE OF CAPACITY  10 millilitres, ml. = 1 centilitre, cl.  10 decilitres = 1 decilitre, dl.  10 decilitres = 1 decilitre, ll.	AVERAGE NUMBER OF SEEDS IN A POUND  Chicory
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## WEIGHTS AND MEASURES TABLES

#### UNITS OF MEASUREMENT

The state of the s

One Horse Power is the force required to raise 33,000 pounds one foot in one minute

One Foot Pound is the energy required to raise one pound one foot

One Dyne is the force which acting on one gramme for one second generates a velocity of one centimetre a second

One Erg is the amount of work done by one dyne acting through one centimetre

One Poundal is the force which acting for one second upon one pound gives it a velocity of one foot per second. It is equal to 13,825.5 dynes

ne Atmosphere is the pressure of 14·7 pounds per square inch equal to 34 feet of water or 29·92 inches of mercury

The British Thermal Unit (B.Th.U.) is the quantity of heat required to increase the temperature of one pound of water by one degree Fahrenheit when it is at a temperature of 39.1 degrees Fahr.

The Unit of Pressure is one pound acting on a surface of one square inch

One Candle-power is the light given by one spermaceti candle,  $\frac{1}{2}$  inch in diameter and  $\frac{1}{4}$  pound in weight burning at the rate of 120 grains per

One Calorie is the quantity of heat required to raise the temperature of 1 kilogramme of water 1 degree Centigrade at, or near, 4 degrees Centigrade

One Therm, the name given to the British thermal unit of heat, is equal to 252 calories

One Joule is equal to 10,000,000 ergs

One light year is 5,876,068,880,000

In Astronomy one unit of length is the mean radius of the Earth's orbit, 92,900 000 miles

A Micron is the millionth of a metre

The Gauss is a magnetic unit equal to one line of force per square centimetre

#### UNITS OF ELECTRICITY

A Volt is the unit for measuring pressure or electro-motive force, and is the electrical pressure which, if steadily applied to a conductor whose resistance is one ohm, will produce a current of one ampère

An Ohm is the unit for measuring resistance, and is the resistance offered to a current by a column of mercury at the temperature of melting ice, the mass being 14.45 grammes, the height of the column 106.3 centimetres, and the section one square millimetre

An Ampire is the unit for measuring current, and is the current one volt will drive through one ohm

A Coulomb is the unit for measuring quantity, and is equal to one ampère flowing for one second

A Microfarad is the unit for measuring capacity, and is equal to the capacity of about three miles of an ocean cable

A Watt is the unit for measuring power, and is equal to a current of amp re at a pressure of one volt

A Joule is the work done in one second in maintaining a current of one ampure against a resistance of one ohm

A Farad is the capacity of a condenser charged to one volt by one coulomb.

A Watt-hour is the energy obtained by maintaining a power of one watt for one hour

A Kilowatt-hour is the Board of Trade unit, and is the equivalent of 1000 watts acting for one hour

MEASURES OF ELECTRICITY 1.000,000 microvolts = 1 volt

> 1000 millivolts = 1 volt1000 volts 1 kilovolt

1,000,000 microhms 1 ohm

1,000,000 ohms = 1 megohm = 3600 ioules 1 watt-hour

1000 watts = 1 kilowatt

1,000,000 microfarads = 1 farad 1,000,000 microampères = 1 ampère

1000 milliampires = 1 ampère = one-thou-1 mil

sandth of an inch

A wire 1 foot long and 1 mil in diameter is 1 mil foot

Resistance per mil-foot is a unit much used

#### CONVERSION TABLES

LINEAL MEASURES FOR TURNING millimetres into inches multiply by .03937

inches into millimetres multiply by 25.4 centimetres into inches multiply by

inches into centimetres multiply by 2.54 decimetres into inches multiply by

inches into decimetres multiply by .254 into inches multiply metres 39.370113

inches into metres multiply by .0254 metres into feet multiply by .3:280843 feet into metres multiply by .3048 metres into yards multiply by .0303143 yards into metres multiply by .1933143 yards into metres multiply by .1988 poles into metres multiply by .5:0202 hectometres into yards multiply by .1003314

109.3614

yards into hectometres multiply by 009144 kilometres into yards multiply 1093-6143

yards into kilometres multiply by -0009144

kilometres into miles multiply by  $\cdot 62137$ miles into kilometres multiply

1.6093 SUPERFICIAL MEASURES FOR TURNING square millimetres into square inches

multiply by ·00155 square inches into square millimetres multiply by 645.16

square centimetres into square inches multiply by .155

square inches into square centimetres multiply by 6.4516

square decimetres into square inches multiply by 15.5

square inches into square decimetres multiply by .064516 square decimetres into square feet multiply by 10764

square feet into square decimetres multiply by 9-2903

square metres into square feet multiply by 10.7639

square reet into square metres multiply by 092903

into metres square yards multiply by 1.196

square uare yards into multiply by 836126 square metres square decametres into square yards

multiply by 119.6 square yards into square decametres multiply by .008361

square decametres into square poles multiply by 3.954 square poles into square decametres multiply by .25293

square decametres into roods multiply by .098844

roods into square decametres multiply by 10·117

square hectometres into acres multiply by 2.4711

acres into square hectometres multiply by  $\cdot 40458$ 

square hectometres into square miles multiply by .00386

square miles into square hectometres multiply by 259 square kilometres into square miles multiply by 386

square miles into square kilometres multiply by 2.59

#### CUBIC MEASURE FOR TURNING

cubic millimetres into cubic inches multiply by .000061

cubic inches into cubic millimetres multiply by 16387

cubic centimetres into cubic inches multiply by .0610

cubic inches into cubic centimetres multiply by 16:387

cubic decimetres into cubic inches multiply by 61-024

cubic inches into cubic decimetres multiply by .016387

cubic metres into cubic feet multiply

by 35:3148 cubic feet into cubic metres multiply by .028317

cubic metres into cubic yards multiply by 1.307954

cubic yards into cubic metres multiply by .764553

#### WEIGHTS

To turn

miliigrammes into grains multiply by .015432

grains into milligrammes multiply by 64.8 centigrammes into grains multiply by

 $\cdot 154$ grains into centigrammes multiply by

6.48decagrammes into grains multiply by

1.543 grains into decagrammes multiply by .648

grammes into grains multiply by 15-432 grains into grammes multiply by .0648 grammes into drams multiply by .5644 (avoirdupois)

cams (avoirdupois) multiply by 1·772 drams into grammes

grammes into pennyweights (troy) multiply by .643

ennyweights (troy) multiply by 1.5552 pennyweights into grammes

grammes into scruples (apothecary's) multiply by .7716

scruples (apothecary's) into grammes multiply by 1.296

grammes into drachms (apothecary's) multiply by .2572

drachms (apothecary's) into grammes multiply by 3.888

grammes into ounces (avoirdupois) multiply by 03527

ounces (avoirdupois) into grammes multiply by 28.350

grammes into ounces (troy) multiply by .03215 ounces (troy) into grammes multiply

by 31·1035 grammes into ounces (apothecary's) multiply by .03215

ounces (apothecary's) into grammes multiply by 31 1035

## WEIGHTS AND MEASURES TABLES

hectogrammes into ounces (avoirdupois) multiply by 3.527

ounces (avoirdupois) into hectogrammes multiply by 2835

kilogrammes into grains multiply by  $15432 \cdot 3564$ 

grains into kilogrammes multiply by .0000648 kilogrammes into ounces (avoirdupois)

multiply by 35.27 ounces (avoirdupois) into kilogrammes

multiply by 02835 kilogrammes into pounds (avoirdupois) multiply by 2.2046223

pounds (avoirdupois) into kilogrammes multiply by 45359243

kilogrammes into hundredweights multiply by 01968

hundredweights into kilogrammes multiply by 50.80

kilogrammes into tons multiply by 000984

tons into kilogrammes multiply by 1016

To turn decilitres into gills multiply by 7 gills into decilitres multiply by 1·42 decilitres into pints multiply by 1·76 pints into decilitres multiply by 5·682 litres into pints multiply by 1·7598 pints into litres multiply by 5·682 litres into quarts multiply by 5·682 litres into quarts multiply by 8·8 quarts into litres multiply by 1·136 litres into gallons multiply by 2·19975 gallons into litres multiply by 4·5459631 decalitres into gallons multiply by 2·19975

gallons into decalitres multiply by 4546 kilolitres into gallons multiply by 219-975

gallons into kilolitres multiply by  $\cdot 004546$ 

centilitres into fluid ounces multiply by 3519

fluid ounces into centilitres multiply by 2.84123

decilitres into fluid ounces multiply by 3.5196

fluid ounces into decilitres multiply by  $\cdot 284$  decalitres into bushels multiply by  $\cdot 275$ 

bushels into decalitres multiply by 3:637 hectolitres into bushels multiply by 2:75

bushels into hectolitres multiply by 2.75 bushels into hectolitres multiply by .3637

hectolitres into quarters multiply by 34381

quarters into hectolitres multiply by 2.909

kilolitres into bushels multiply by 27.5 bushels into kilolitres multiply by .03637

kilolitres into quarters multiply by 3.4381

quarters into kilolitres multiply by 2909

# COMPOUND FACTORS

pounds per lineal foot into kilogrammes per lineal metre multiply by 1.488

kilogrammes per lineal metre into pounds per lineal foot multiply by 0.672

pounds per lineal yard into kilogrammes per lineal metre multiply by 0.496

kilogrammes per lineal metre into pounds per lineal yard multiply by 2.016

tons per linea foot into kilogrammes per lineal metre multiply by 3333.33

kilogrammes per lineal metre into tons per lineal foot multiply by 0.0003

tons per lineal yard into kilogrammes per lineal metre multiply by 1111·11

kilogrammes per lineal metre into tons per lineal yard multiply by 0.0009

pounds per mile into kilogrammes per kilometre multiply by 0.2818

kilogrammes per kilometre into pounds per mile multiply by 3-548

pounds per square inch into kilogrammes per square centimetre multiply by 0.0703

kilogrammes per square centimetre into pounds per square inch multiply by 14.223

tons per square, inch into kilogrammes per square millimetre multiply by 1.575

kilogrammes per square millimetre into tons per square inch multiply by 0.635

pounds per square foot into kilogrammes per square metre multiply by 4.883

kilogrammes per square metre into pounds per square foot multiply by 0.2048

tons per square foot into tonnes per square metre multiply by 10.936

tonnes per square metre into tons per square foot multiply by 0.0914 tons per square yard into tonnes per

square metre multiply by 1.215
tonnes per square metre into tons per

square yard multiply by 0.823 pounds per cubic yard into kilogrammes per cubic metre multiply by 0.5933

by 0.5933 kilogrammes per cubic metre into pounds per cubic yard multiply by 1.686

pounds per cubic foot into kilogrammes per cubic metre multiply by 16.02

kilogrammes per cubic metre into pounds per cubic foot multiply by 0.0624

tons per cubic yard into tonnes per cubic metre multiply by 1.329

tonnes per cubic metre into tons per cubic yard multiply by 0.752

pounds per gallon into kilogrammes per litre multiply by 0.09983

kilogrammes per litre into pounds per gallon multiply by 10·438

inch-tons into kilogrammetres multiply by 25.8 kilogrammetres into inch-tons multiply

by .0387

foot-pounds into kilogrammetres multiply by 0.1382

kilogrammetres into foot-pounds multiply by 7.233

foot-tons into tonne-metres multiply by 0.309

tonne-metres into foot-tons multiply by 3.23

heat units into calories multiply by 0.252

calories into heat units multiply by 3.968

heat units per square foot into calories per square metre multiply by 2.713

calories per square metre into heat units per square foot multiply by 0.369

CONVERTING ENGLISH WEIGHTS AND MEASURES

To turn

feet into links multiply by 1·5151 links into feet multiply by ·66 chains into miles multiply by ·0125 miles into chains multiply by 80

Scottish miles into multiply by 1·123
English miles into multiply by 980

English miles into multiply by 890

Irish miles into English miles multiply by 1.272

English miles into Irish miles multiply by .785

Russian versts into English miles multiply by 6629

English miles into Russian versts multiply by 1.508

square feet into acres multiply by 0000229

acres into square feet multiply by 43,560 square yards into square miles multiply by .000000322

square miles into square yards multiply by 3,097,600

square miles into acres multiply by 640 acres into square miles multiply by 001562

cubic feet into bushels multiply by .778 bushels into cubic feet multiply by 1.285

cubic inches into gallons multiply by .003604

gallons into cubic inches multiply by 277.463

cubic feet of water into pounds multiply by 62.2786

pounds of water into cubic feet multiply by .01605 cubic feet of water into tons multiply

cubic feet of water into tons multiply by 0278

tons of water into cubic feet multiply by 35.9

#### QUICK WAYS OF RECKONING

The formulae given above enable us to get exact figures, but there are rough and ready ways of changing one measure or weight into another so as to give us approximate results, and some of the more useful are given here.

To turn

metres into feet multiply by 3½ feet into metres multiply by 3 and divide by 10

metres into yards add one-tenth yards into metres deduct one tenth kilometres into miles multiply by 3 and divide by 5

miles into kilometres add three-fifths of the number square metres into square yards add

one-fifth
square yards into square metres deduct

square yards into square metres deduct one-fifth square kilometres into square miles

multiply by 2 and divide by 5 square miles into square kilometres multiply by 23

cubic metres into cubic yards add onethird

cubic yards into cubic matres deduct one-third

kilogrammes into pounds (avoirdupois) add a tenth and multiply by 2

pounds into kilogrammes deduct a tenth and divide by 2

litres into pints add three-quarters
pints into litres multiply by 3 and
divide by 5

#### THE QUICKEST WAY QF FINDING THINGS

The Area of a Triangle

The area of a triangle is equal to the base multiplied by half the perpendicular height; or if we know the length of the three sides AB, BC, CA, and half their sum is represented by S, we can find the area by using the formula S (S-AB) (S-BC) (S-CA), and by Btaking the square root of the result.

The Area of an Equilateral Triangle The area of an equilateral triangle can be found by multiplying the length of one side by '433.

If we have the Length of Two Sides of a Right-Angled Triangle, how can we find the Third Side?

If we have the base and perpendicular we should square each of these, add the

results together, and take the square root of the sum; that will give us the length of the hypotenuse, or side opposite the right angle. If we have the length of the hypotenuse and

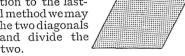
one other side, we should square them both, subtract the smaller number from the larger, and take the square root of the result. That will be the third side.

The Area of a Parallelogram

To find the area of a parallelogram, we have to multiply the base by the perpendicular height.

The Area of a Rhombus or

In addition to the lastmentioned method we may multiply the two diagonals together and divide the result by two.



The Area of a Trapezoid

A trapezoid is a four-sided figure having two of its sides parallel, and we find the area by taking half the sum of the two parallel sides and multiplying by the perpendicular distance between them.



The Area of a Trapezium

is the area.

A trapezium is a four-sided figure of which no two sides are parallel. We find

its area by multiplying the longest diagonal by half the sum of the two perpendiculars falling on it from the opposite Another method of angles. finding the area of any figure



of four or more unequal straight sides is to divide it into triangles and find the area of each, adding these together for the result.

The Area of a Hexagon, Octagon, or any Regular-sided Figure

Take half the radius of the inscribed circle (that is, the circle drawn inside the figure and touching all its sides), multiply this by the length of one side, and then multiply the result by the number of the sides.



The Circumference of a Circle
Multiply the diameter of the circle by 3.1416, or, more roughly, by 31.

The Diameter of a Circle
If we have the length of the radius we multiply that by two to find the diameter. of a circle; if we have the length of the circumference we multiply that by '31831.

The Area of a Circle
There are many ways of finding the area of a circle. We may multiply half the radius by the circumference; or we may square the radius and multiply by 3.1416; or we

may square the diameter and multiply by 7854; or we may square the circumference and divide by 3.1416 multiplied by four; or we may square the circumference and multiply bv .07958; or we may find the area of a tri-

angle having a base equal to the circumference and a height equal to the radius. The Circumference of an Ellipse

Take half the sum of the long and short diameters and multiply by 3.1416. answer gives the circumference.

e Area of an Ellipse Take the long diameter, multiply it by the short diameter, and multiply the result by .7854.

The Length of the Arc of a Circle
The simplest way to find this is to subtract the chord of the whole arc from eight times the chord of half the arc, and divide

the remainder by three. The Area of the Sector of a Circle Multiply the length of the arc by one half the radius and the result is the area of the sector.

The Area of the Segment of a Circle We find the area of a sector having the same arc by the method given in the last paragraph, and then subtract from the result the area of the triangle formed by the radii and the chord.

The Area of the Surface of a Sphere This is found by squaring the diameter and multiplying by

3.1416; or by multiplying the diameter by the circumference. The Cubic Contents of a Sphere

To find this we must cube the diameter and multiply by .5236; or we take the area of the surface and then multiply it by one-third of the radius.

The Area of the Surface of a Cylinder Add the areas of the two ends to the result of the circumference of one end multiplied by the length. This will give the area of the surface.

The Cubic Contents of a Cylinder Multiply the area of one end by the length of the cylinder; the result is the cubic contents.



## THE QUICKEST WAY OF FINDING THINGS

The Area of the Surface of a Prism

To find this add the areas of the two ends to the perimeter, or distance round one end multiplied by the length.

The Cubic Contents of a Prism

Multiply the area of one end by the length of the prism and the result is the cubic contents. The Cubic Contents of a Prismoid

A prismoid is a body that approaches to

the form of a prism without being actually a prism; that is, its sides are not parallelograms. To find its contents we proceed thus: to the sum of the area of the two ends we add four times the middle area and multiply the sum by one-sixth the height.

To find this multiply the slant height by the circumference of the base, and divide the result by two. Then to the result add

To find this multiply one-third of the perpendicular by the area of the base.

Multiply the slant height by the perimeter of the base, divide by two, and add the area of the base. result will give the area of the

The Cubic Contents of a Pyramid Multiply one-third of the per-

pendicular height by the area of the base to find the cubic contents.

The Length of a Ring

There are various ways of finding the We may multiply the

sum of the radii of the outer and inner boundaries by 3'1416; or we may take half the sum of the outer and inner boundaries; or we may subtract the circumference of the cross section

from the outer boundary; or we may add the inner boundary to the circumference of

The Area of the Surface of a Plane Ring

The surface of a plane ring is the space between two concentric circles, and its area is found by adding the two radii together, multiplying by their difference, and then multiplying the result by 3.1416.

Multiply the circumference of the circular section of the ring by the length of the ring, and the result is the area of the surface.

To find this multiply the area of the cross section by the length of the ring.

This means the space occupied by the actual material of a hollow ball, and we find it by subtracting the cube of the inner

diameter from the cube of the outer diameter and multiplying the result by '5236.

The Cubic Contents of the Zone of a Sphere

The zone of a sphere is the part included between two parallel planes, and its contents are found by squaring the radius of the base, multiplying the result by three, then adding that result to the square of the height, and multiplying the whole by 5236 of the height.

The Cubic Contents of the Segment of a Sphere

The segment of a sphere is the part cut off by a single plane, and its contents are found by squaring the radius of the base, multiplying the result by three, then adding that result to the square of the height, and multiplying the whole by '5236 of the height.

The Area of the Surface of a Frustum A frustum is the part of a solid figure next to the base left after cutting off the

top part by a plane parallel to the base. The area of its surface is found by multiplying the slant height by the perimeter of the two ends added together, dividing by two, and then adding to the result the areas of both ends.

The Cubic Contents of a Frustum

To the area of the two ends add the square root of their product and multiply by onethird of the height to find the cubic contents.

The Area of a Parabola

A parabola is formed when we intersect or cut a cone with a plane parallel with its side. The area of the surface thus exposed is found by multiplying the base by two-thirds the height.

The Length of the Side of a Square Inscribed in a Circle

Multiply the diameter of the circle by 707 and the result gives the side of the inscribed square.

The Diameter of a Circle Circumscribing a Square Multiply the side of the square by 1.414.

The Length of the Side of a Square Circumscribing a Circle

This square of course has a side exactly equal to the diameter of the circle that it circumscribes, or fits round.

The Length of the Side of a Square Equal in Area to a Circle

Multiply the diameter of the circle by 8862.

The Diameter of a Circle Equal in Area to a Square Multiply the side of the square by 1.1284.

The Cubic Contents of a Cube
Multiply the length by the breadth and the result by the height; in other words, cube the side, and the result is the volume or cubic contents.



# WEIGHT OF MATERIALS

A Cubic Foot of Brickwork

The weight of a cubic foot of ordinary brickwork is 112 pounds, but if the work consists of the best pressed bricks the weight is 140 pounds.

A Cubic Foot of Cement

English Portland cement is very heavy, a cubic foot weighing 90 pounds, against only the 50 or 60 of American cement.

A Cubic Foot of Clay

A cubic foot of clay in loose lumps weighs about 63 pounds, but a cubic foot of potter's clay weighs 119 pounds.

A Cubic Foot of Copper

If the copper is cast, a cubic foot weighs 542 pounds; if it is rolled, 548 pounds.

A Cubic Foot of Earth

A cubic foot of common loam, dry and loose, weighs about 76 pounds; if it is moderately rammed, 95 pounds; if it is soft, flowing mud, it will weigh 108 pounds.

A Cubic Foot of Gravel or Sand

The weight varies according to the texture of the material. Pure quartz sand, dry and loose, weighs from 90 to 106 pounds a cubic foot; well-shaken sand weighs 99 to 117 pounds; wet sand, 120 to 140 pounds.

A Cubic Foot of Glass

A cubic foot of common window glass weighs on an average about 157 pounds.

A Cubic Foot of Gold

A cubic foot of pure hammered gold weighs 1217 pounds; pure cast gold only 1204 pounds.

A Cubic Foot of Water

One cubic foot of fresh water is equal to 62½ pounds, and measures 6½ gallons. This is at 62 degrees Fahrenheit, and with the barometer's pressure at 30. A cubic foot of sea water weighs 64 pounds. In one ton of fresh water there are 35.88 cubic feet, and in a ton of salt water 34.937 cubic feet.

Salt Water and Fresh Water

973 parts of sea water weigh about the same as 1000 parts of pure water; in other words, sea water is 1.027 the weight of pure water.

A Gallon of Water

A gallon of water weighs 10 pounds, and occupies  $277\frac{1}{2}$  cubic inches. There is a useful old rhyme which says, "A pint of pure water weighs a pound and a quarter."

A Cubic Foot of Coal

The weight depends on the coal. A cubic foot of Welsh anthracite, broken, weighs 58 28 pounds; of Welsh bituminous coal, 53 pounds; of Lancashire coal, 50 pounds; of Newcastle coal, 50 pounds; and of Scottish coal, 53 pounds. There are 39 cubic feet of Welsh anthracite in a ton of coal, 42 of Welsh bituminous, 45 of Lancashire, 45 of Newcastle, and 42 of Scottish.

A Cubic Foot of Metal

Lead, a cubic foot of which weighs 711 pounds, is the heaviest common metal; silver comes next with 655 pounds to the foot; then copper, 542 pounds; steel, 490

pounds; cast tin, 459 pounds; cast iron, 450 pounds; zinc, 437 5 pounds. These, however, are all very light compared with platinum, which has 1342 pounds to the cubic foot, and gold, 1217 pounds to the foot; though they are very heavy compared with aluminium, a cubic foot of which weighs only 162 pounds.

A Cubic Foot of Ice

A cubic foot of ice weighs 578 pounds; in other words it is about  $4\frac{1}{2}$  pounds lighter than a cubic foot of water.

A Cubic Foot of Air

At 60 degrees Fahrenheit and ordinary atmospheric pressure, a cubic foot of air weighs 536 2 grains, or 1 225 ounces avoirdupois.

A Cubic Foot of Hydrogen Gas

At 60 degrees Fahrenheit and ordinary atmospheric pressure, a cubic foot of hydrogen, the lightest of all known substances, weighs 37.2 grains, or not quite a twelfth of an ounce avoirdupois.

,这种是一种,我们是一种,我们是一种,我们们是一种的人,我们也不是一种的人,我们也是一种的人,我们也会会会是一种的人,我们也是一种的人,我们们也是一种的人,也是 第一个时候,我们是一种的人,我们就是一种的人,我们就是一种的人,我们就是一种的人,我们就是一种的人,我们就是一种的人,我们就是一种的人,我们就是一种的人,我们就

A Cubic Foot of Steam

At 212 degrees Fahrenheit, the boiling point of water, a cubic foot of steam weighs 275.8 grains, or about three-fifths of an ounce avoirdupois. One cubic inch of water, which weighs 252½ grains, will form rather more than one cubic foot of steam.

A Cubic Foot of Carbon Dioxide

At 60 degrees Fahrenheit and ordinary atmospheric pressure, a cubic foot of carbon dioxide weighs 819.8 grains, or nearly two ounces avoirdupois.

A Cubic Foot of Brass

Brass is properly an alloy of copper and zinc, and a cubic foot of cast brass weighs 504 pounds, while a cubic foot of rolled brass weighs 524 pounds.

A Cubic Foot of Salt

If the salt is coarse, a cubic foot weighs about 45 pounds, but if it is fine, like that for table use, it would be at least 49 pounds.

A Cubic Foot of Snow

Freshly fallen snow weighs only from five to twelve pounds a cubic foot; but if it is moistened by rain it may weigh anything from 15 to 50 pounds a foot.

A Cubic Foot of Lime

If the lime is in small lumps a cubic foot weighs about 53 pounds; but if it is thoroughly shaken together a foot weighs 75 pounds.

A Cubic Foot of Stone

The weight varies very much according to the stone. A cubic foot of granite weighs 170 pounds; of limestone or marble, 168 pounds; quartz, 165 pounds; sandstone, 151 pounds; shale, 162 pounds; slate, 175 pounds.

A Cubic Foot of Iron

If it is cast iron a cubic foot weighs 450 pounds; if pure wrought iron, 485 pounds.

A Cubic Foot of Ivory

Ivory is a fairly heavy substance, and a cubic foot weighs 114 pounds.

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Wends. A Slav race of some 200,000
people living in Prussian and Saxon
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75,000
Western Australia: Largest Australian

coamming and fron-founding centre, 6 miles north-west of Birmingham. 75,000

Western Australia: Largest Australian State; area 976,000 square miles; population 330,000: capital Perth, 155,000 (including Fremantle). The interior consists mainly of a plateau 1800 feet high, and much of it is waterless, but good crops of wheat and fruit are grown near the coast. The Coolgardie goldfields produced 550,000 ounces of the metal in 1921, while there is a valuable pearl fishery at Shark Bay. The forests produce some of the finest hardwoods in the world, especially jarrah and karri. Albany (4000), Bunbury (4500), and Geraldton (4100) are ports: 2573

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West Hartlepool. Port in Durham, with shipbuilding and engineering industries and a great export of coal. 70,000
West Indies. Archipelago which separates the Atlantic Ocean from the

dustries and a great export of coal.
70,000
West Indies. Archipelago which separates the Atlantic Ocean from the Gulf of Mexico and the Caribbean Sea.
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Westminster School, arms, in colour, Westmorland. English northern county;

Westmorland. English northern county; area 790 square miles; population 66,000; capital Appleby. Lying between the Cumbrian Mountains and the Pennine Chain, it is generally mountainous, and contains part of the Lake District. Towns include Kendal, Kirkby Lonsdale, and Windermere Weston-super-Mare. Seaside resort on the Bristol Channel, in Somerset. 32,000

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1 1.47 .005 Hardly perceptible  $\substack{1.47 \\ 2.93}$  $\frac{1}{2}$   $\frac{3}{4}$   $\frac{4}{5}$ Just perceptible
Just perceptible
Just perceptible
Gentle breeze
Gentle breeze
Pleasant breeze ·020 ·044 ·079 4·4 5·87 7·33 ·123 ·492 10 14.67 22.0 29.3 1·107 1·968 Pleasant breeze Brisk gale  $\frac{36.6}{44.0}$ 3.075 Brisk gale High wind 4·428 6·027 51.3 High wind 7.872 9.963  $\frac{40}{45}$ 58·6 66·0 Very high wind Very high wind 12·3 17·712 24·108 31·488 49·2 50 73·3 60 88·0 70 102·7 Storm Great storm Great storm 80 117·3 100 146·6 1-108 Great Storm 1-488 Hurricane 1-2 Hurricane tear-ing up trees and de-molishing buildings

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miles long and a mile broad; its shores
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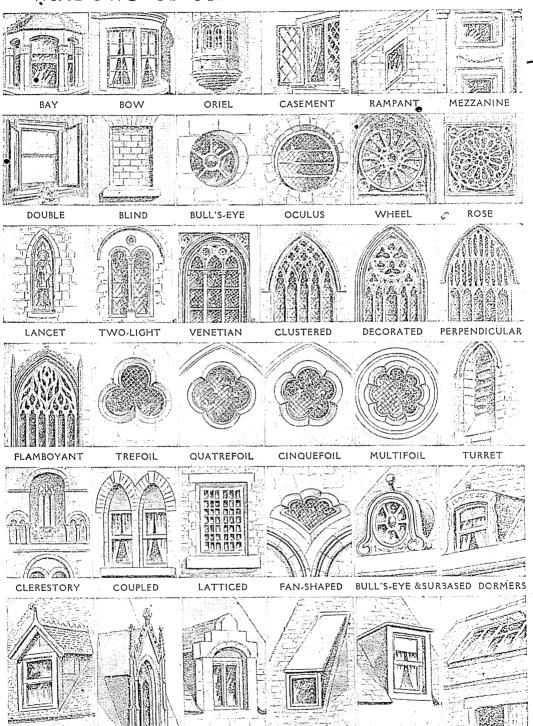
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# WINDOWS OF ALL TIMES AND PLACES



GABLED DORMER DECORATED & FLEMISH DORMERS RAMPANT & SQUARE DORMERS

SKYLIGHT

Windows are, of course, intended in the first place for the admission of air and light into buildings, but they have been utilised for 2000 years as opportunities for beautifying architecture; and these pictures show some of the ways in which this is done. Windows of all these kinds may be seen in any ancient city where there are fine old churches and colleges. To see the full artistic effect of a fine use of windows we need only look at the inside or outside of any Gothic church. The names given here are those by which the style of window is known in architecture.

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AREA AND POPULATION OF THE COUNTRIES OF THE WORLD IN ROUND NUMBERS

Square Miles Population 350,000. 10,000,000 250,000. 8,000,000 Country Abyssinia ... Afghanistan ... 850,000 5500 Albania 17,400.. Andorra 5,000,000 Arabia Argentina 9,000,000 5,650,000 6,650,000 7,580,000 Australia Austria Belgium 
 Belgium
 11,750.
 7,580,000

 Belgian Congo
 900,000.
 11,000,000

 Bolivia
 515,000.
 2,900,000

 Brazil
 3,800,000.
 31,000,000

 British Empire 13,910,000.
 460,000,000

 Canada
 3,730,000.
 9,000,000

 Chile
 290,000.
 3,800,000

 China
 1,500,000.
 400,000,000

 Colombia
 440,000.
 5,860,000

 Costa Rica
 23,000.
 500,000

 Cuba
 44,000.
 3,125,000
 44,000... 3,125,000 55,000... 13,650,000 Czecho-Slovakia Denmark Dominican 16,600.. 3,300,000 19,300.. Republic Ecuador 900.000 276,000... 2,000,000 363,000... 13,000,000 Egypt 1,100,000 3,400,000 39,250,000 Esthonia 17,000... 145,000... Finland Finanu 213,000 39,250,000 France 213,000 67,000,000 Germany 182,000 60,000,000 Greece 42,000 5,100,000 Guatemala 48,000 2,000,000 9050,000 5,100,000 2,000,000 2,050,000 40,000. 2,000,000 10,200. 2,050,000 12,580. 6,000,000 44,000. 680,000 36,000. 8,000,000 41,000. 100,000 Haiti Holland Honduras Iceland 1,800,000 ... 320,000,000 e 27,300 ... 3,140,000 118,000 ... 38,850,000 India Irish Free State 
 Italy
 118,000
 38,850,000

 Japanese Empire
 260,000
 80,000,000

 Latvia
 25,000
 1,900,000

 Liberia
 40,000
 2,000,000

 Lichtenstein
 65
 1,000

 Lithuania
 20,000
 2,300,000

 Luxemburg
 1,000
 205,000

 Mexico
 770,000
 15,000,000

 Monaco
 5
 25,000
 Ttalv Monaco Mongolia ... 1,075,000... 25,000 3,000,000 240,000.. 105,000.. 52,000.. 6,000,000 1,350,000 650,000 New Zealand Nicaragua Norway Panama Paraguay Persia Peru Poland Portugal Portuguese Colonies 927,000... 9,675,000 122,000... 17,400,000 7,000,000... 136,000,000 7,225... 1,550,000 Rumania Russia Salvador 38.. 12,000 195,000.. 9,250,000 San Marino ... Siam . South Africa, 795,000.. 7,200,000 195,000.. 21,700,000 Union of Spain 
 Spain
 195,000
 21,700,000

 Sweden
 173,000
 6,000,000

 Switzerland
 16,000
 3,900,000

 Tibet
 700,000
 6,000,000

 Turkey
 210,000
 12,000,000

 United States
 3,000,000
 110,000,000

 Uruguay
 72,000
 1,500,000

 Venezuela
 400,000
 2,500,000

 Venezuela
 10,000
 13,000,000
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W.S. stands for Writer to the Signet
Wuchang. Sister city of Hankow, China, on the Yantse-kiang. 900,000
Wuchow. Chinese port at the head of navigation of the Sikiang river. 350,000
see page 6510
Wulfenite, mineral, 1304
Wurtemberg. Third largest German
State, between Baden and Bavaria.
Stüttgart (290,000) is the capital; other towns are Ulm, Reutlingen,
Esslingen, and Heilbrönn
railway engine, 3510
Wurtz tube, form of the Glinsky tube, which see
Wurzburg. Ancient cathedral and
university city in northern Bavaria.
90,000: see page 6372
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90,000: see page 6372
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born about 1640; died 1716: see page 1611
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Wye. River of England and Wales, rising in Plynlimmon and flowing into the Bristol Channel. It passes Builth, Hereford, Ross, Tintern, and Chepstow, and is noted for its scenery and salmon fishery. 130 miles
Chepstow Castle, 961
source near Aberystwyth, 1461
Symond's Yat, 1717
Wykeham, William of, bishop of Winchester: at work on Winchester Cathedral, 950
Wyllie, W. L., modern English painter; born London 1851: Pool of London, painting, 5137
Wyoming, American Rocky Mountain

born London 1851: Pool of London, painting, 5137
Wyoming. American Rocky Mountain State; area 98,000 square miles; population 200,000; capital Cheyenne. On an average it is over 7000 feet above sea level, only small areas being fit for cultivation, and grazing and mining are the most important industries.

Abbreviation Wyo.
State flag, in colour, 2411

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Xanthus, Lycia, figures from tomb in
Acropolis, 4032
Xavier, St. Francis, Spanish Jesuit
missionary, called the Apostle of the
Indies; born Xaviero, Navarre, 1506;
died off a journey to China 1552: see
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Xenophanes, Greek philosopher; born
Colophon, Asia Minor, about 570 B.C.;
died about 480 B.C.; see 3650, 5182
Xenophon, Athenian soldier and historian, leader of the 10,000 Greeks in
the retreat from Babylonia; born
Athens about 430 B.C.; died probably
Corinth about 357: see page 1889
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Xerxes, Persian king; born about 510
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Greece 480: see 40027, 6388, 6804
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Yakuts. The race dwelling around the river Lena, who are the typical representatives of the original Turki peoples. Of short stature, with dark and deeplysunk eyes, they more resemble the American Indians than the other Mongols. Only numbering some 200,000 they are a thriving and enterprising race, walking about lightly clad in the coldest regions of the habitable globe Yallingup Cave, W. Australia, stalactites, 6845
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plant, 2441; in colour, 2685
Yamanaka, Lake, Japan, view from Fujiyama, 6627
Yambu, or Yembo, pilgrimage port of Medina, Arabia: 6266
Yangtsze-Kiang. Great Chinese river, one of the most important in the world. Rising in the Tibetan plateau, it is 3160 miles long and drains 650,000 square miles, its discharge into the Yellow Sea being estimated at 770,000 cubic fect a second. Half the commerce of China is distributed through its ports, the greatest of which are Chungking, Ichang, Hankow, Wuchow, Hanyang, Kiukiang, Wuhu, Nanking, and Shanghai; while its basin is one of the most fertile and thickly populated districts in the world, 2494, 6509
Yapotk, water opossum, 2394
Yard, measure, said to be based on length of arm of an early king, 4834
Yare. Norfolk river which flows past Norwich and Yarmouth into the North Sea. The Wensum, Waveney, and Bure and its tributaries. 60 miles Wherries, painting by Wilson, 2304
Yarkand. Tradding centre in Chinese Turkestan, with silk, cotton, felt, and carpet manufactures. 100,000: see page 6503
louses by river, 6501
Yarmouth, Great, Seaside resort and great fishing port in Norfolk, near the

page 6503
houses by river, 6501
Yarmouth, Great. Seaside resort and great fishing port in Norfolk, near the mouth of the Yare. 60,000
Yaroslavl. Russian industrial town on the upper Volga. 130,000
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Its name is due to the vast quantities of
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Yezhasii, in Norse mythology, the tree whose branches spread above the heavens
Y.M.C.A. stands for Young Men's

heavens
Y.M.C.A. stands for Young Men's
Christian Association
Yokohama. Chief port of Tokio and
Japan, with steamship services to all
parts of the world. Badly damaged in
the earthquake of 1923, it is rapidly
recovering, and exports much silk, coal,
copper, and tea. 450,000
children of Yokohama, 6822
Yonkers. Northern suburb of New
York. 110,000
York. Historic capital of Yorkshire, on

contere of Yorkonama, 0622
Yorkers. Northern suburb of New York, 110,000
York. Historic capital of Yorkshire, on the Ouse. Still surrounded by medieval walls, it has many picturesque streets and buildings, but its chief glory is its splendid Minster, with three towers of over 200 feet. Built on the site of a 7th-century church, it is famous especially for its stained-glass windows. 85,000: see pages 5872, 6240
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Guildhall, 6252 Micklegate Bar, 6246 Saint Mary's Abbey, 963 the Shambles, 843 view of the walls, 1833 York Minster, 5875, 5881 York, Gape. Northernmost point of Queensland, at the head of the York

peninsula

peninsula Yorkshire. Largest English county; area 6077 square miles; population 4,200,000 capital York. Watered by the Ouse, it is divided into East, West, and North Ridings, the West Riding being the centre of the British woollen industry and to a great extent of the steel industry. In the North Riding is the Cleveland iron-mining district, while the East, Riding contains the port of the Cleveland iron-mining district, while the East Riding contains the port of Hull. Among the greatest industrial towns are Sheffield, Leeds, Bradford, Huddersfield, Halifax, and Middles-brough: 338 Yorkshire terrier, dog, 668 Yosemite National Park, U.S.A., sequoia trees. 3806

Yosemite National Park, U.S.A., sequoia trees, 3806
Lower Yosemite Fall, 2500
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Yosemite Valley. Famous natural spectacle in Sierra Nevada, California. A huge gully is here enclosed by rock walls rising to nearly 6000 feet, these providing a remarkable illustration of the force of glacial action: 3800 position on map, 3686
Youghal. Port of Co. Cork, near the mouth of the Blackwater. (6000)
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Youngstown. Manufacturing city in Ohio, U.S.A. 140,000
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Youth Listens to Music of Love, painting by J. M. Strudwick, 3738

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Youth of Hereward the Wake, story and picture, 4735

Ypres, Earl of: see French, John
Ypres. Ancient Belgian city, one of the greatest in Flanders in the Middle Ages. The rains of the cathedral and splendid Cloth Hall are being preserved as a memorial of the British defence, 1914-18. 15,000: see 1709, 6371

Yurbide, Mexican patriot, 7000

Yucatan, State, Mexico, ancient Maya remains, 7008

Indian mother and child, 7007

Maya temple, 6990

Yuca, plant, 1070

Yudhishthira, story of, 660

Yugo-Slavia. Kingdom in south-east Europe of the Serbs, Croats, and Slovenes; area about 100,000 square miles; population 13,000,000; capital Belgrade (120,000). It comprises Serbia and Montenegro, with Bosnia, Herzegovina, Dalmatia, Croatia, Slavian, and other former Austro-Hungarian dominions; its people belong to three religions—the Greek Orthodox, Roman Catholic, and Mohammedan. Agriculture, fishing, stock-raising, and fruit-growing are prominent industries. Agriculture, fishing, stock-raising, and fruit-growing are prominent industries. Serbia proper become tributary to Turkey after the fatal battle of Kossovo In 1389, and it was not till 1878 that it In 1389, and it was not till 1878 that it completely recovered its independence. In 1918 the Serbs became one nation with their kindred races in Austria-Hungary. The chief towns are Zagreb (Agram), Liubliana (Laibach), Sarajevo, Uskub, Monastir, and Nish; Zara, Sebenico, Spalato, Ragusa, and Cattaro are Adriatic ports: 4553 formation after Great War, 1713 flags, in colour, 4012

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Yugo-Slavs. The Southern group of
Slavs who form a great nation in the
North Balkans. They belong to the
round-headed Alpine stock
Yukon Great river of Canada and

round-headed Alpine stock
Yukon. Great river of Canada and
Alaska, flowing from the Rocky Mountains into the Behring Sea. 2200 miles
long, during the summer it is navigable
for steamers up to Dawson, 1400 miles
from its mouth. The Klondyke is one
of its tributaries, 1404
Yukon Territory. Canadian northwestern region, in the basin of the
Yukon river; area 207,000 square
miles; population 4000: capital Dawson City. In 1896 the discovery of
gold in the Klondike Valley attracted
30,000 people to the district, but the
output has sunk to one-tenth: 2078
Yunnan, Chinese province, 6509

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Zagreb. Formerly Agram, capital of
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Zama, battle of. Victory of Scipio the
Younger, near Carthage in 202 B.C., over
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Zambesi. South African river flowing
through Angola, Rhodesia, and Portu-

guese East Africa into the Indian Ocean. 1600 miles long, it is navigable for 400 miles, while its tributary the Shiré communicates with Lake Nyasa. In Rhodesia are the Victoria Falls, where it drops 350 feet in a mile: see Heat, melting point: see Heat, melting points of metals weight of a cubic foot: see Weights and Measures, weight of materials See also Materials, strength of materials: and industries maps page 6742

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Victoria Falls, 3312

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Victoria Falls, 2500, 3194

Zambesi Bridge, highest bridge in the world and the greatest feat of engineering in South Africa. A single span girder bridge, 550 feet long, and 420 feet above the water, carries the Cape to Cairo railway over the gorge 400 yards below the Victoria Falls: 548 pictures of its building, 557

Zamora. Ancient and picturesque, Spanish cathedral city, on the Douro. 20,000

Zangwill, Israel, Jewish novelist and

Zongwill, Israel, Jewish novelist and writer of plays; born London 1864: see page 3714

see page 3714
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Zeno, Greek philosopher, a teacher of Pericles; lived Elea, Italy, in the sixth century B.C.: 3124, 3119

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Zorah, dwelling place of Samson's parents, 1487
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Zulu-Xosas. The most advanced socially and politically of all the Bantu

Zulu-Xosas. The most advanced socially and politically of all the Bantu people of South Africa. After dominating the Bushmen and Hottentot people some 500 years ago, they extended in many directions until they were conquered by the British. A tall, boisterous, laughter-loving people, they had a code of laws and were governed by a powerful aristocracy

Zurbaran, Francisco, Spanish religious painter of the naturalistic school; born Fuente de Cantos, Badajoz, 1598; died Madrid 1662: see page 1308 his pictures, Miracle of St. Hugo, 1311

Zarich. Chief Swiss industrial, commercial, and railway centre, on the Lake of Zürich. It is famous for its university and schools, while Zwingli was once pastor of its ancient cathedral. 210,000: see page 4672

Zärich, Lake of. Swiss lake lying southeast of Zürich. 25 miles long, it covers 32 square miles

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Zuyder Zee. Gulf in the coast of Holland, fringed on the north by the Frisian Islands. Once a small inland lake, it was formed in the 12th and 13th centuries by terrible inundations of the sa; its depth is even now only 11 feet lake, it was formed in the 12th and 13th centuries by terrible inundations of the sea; its depth is even now only 11 feet on an average, sinking in places to three feet, so that much of the coast cannot be approached by large ships. In 1920 a scheme was adopted to reclaim a large area by building a dam from North Holland to Friesland: 5523 fishermen of, 5525 Zwingli, Ulrich, the leader of the Reformation in Switzerland: born Wildhaus, St. Gallen, 1484: killed at battle of Kappel 1531: see pages 4672, 4679 hts teaching, 7051